HELSINKI SCHOOL OF ECONOMICS (HSE)
Department of Accounting and Finance

TAKEOVERS OF PRIVATE FIRMS, ACQUISITION CHARACTERISTICS, AND SHAREHOLDER RETURNS

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Tutkielman tavoitteet

Tutkielman tavoitteena on tutkia eroaako listaamattoman yrityksen osto listatun yrityksen ostosta ostotapahtuman ominaispiirteiden, osakkeenomistajien tuottojen ja tuottoihin vaikuttavien tekijöiden osalta.

Lähdeaineisto

Lähdeaineisto koostuu 10216:sta listaamattoman yrityksen ja 2977:stä listatun yrityksen toteutetusta yrityskaupasta Yhdysvalloissa, jotka on julkistettu välillä 1.1.1986 ja 31.12.2003.

Aineiston käsittely

Tutkielmassa käytetään tilastollisia jakaumatestejä ja regressiomallinnusta tutkittaessa listaamattomien yritysten ja listattujen yritysten kauppoja. Osakkeenomistajien tuottoja mitataan markkinaportfolio-korjatuilla epänormaaleilla tuotoilla, joita verrataan suoraan listaamattomien ja listattujen yritysten välillä sekä regressiomallinnuksella useaa eri tekijää vastaan mahdollisten erojen löytämiseksi.

Tulokset

Ostajayritysten osakkeenomistajien tuotot ovat tilastollisesti merkitsevästi positiivisia ja suurempia listaamattomien yritysten ostoissa kuin listattujen yritysten ostoissa. Myös ostettavien listaamattomien yritysten osakkeenomistajat vaikuttavat saavan paremman tuoton kuin listattujen yritysten osakkeenomistajat. Tämä tukee teoriaa listaamattomien yritysten paremmista neuvotteluvoimista ja toisaalta hypoteesia uuden suurosakkeenomistajan monitorointi ja signalointivaikutuksesta yhdistyneessä yrityksessä. Listaamattomien yritysten ostajien tuotot ovat suurempia, jos maksutapana on osakkeet, kun taas listattujen yritysten ostajien tuotot ovat silloin pienempiä. Samalla toimialalla toimivien yritysten yrityskaupoilla on merkitsevästi negatiivisempi vaikutus ostajan tuottoihin kuin eri toimialoilla toimivien. Listaamattomien yritysten ostoissa yleisin maksutapa on käteinen raha ja käteisostojen osuus on tilastollisesti merkitsevästi suurempi kuin listattujen yritysten ostoissa. Aika yrityskaupan julkistamisesta sen toteuttamiseen on merkitsevästi pienempi listaamattomien yritysten ostoissa.

Avainsanat

Yrityskauppa, fuusio, epänormaali tuotto, listaamaton yritys

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ABSTRACT
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Objectives of the study

The purpose of this study is to examine whether acquiring a privately held company differs from acquiring a publicly held company in terms of acquisition characteristics, shareholder returns and the factors affecting shareholder returns.

Data

The data consists of 10216 completed takeovers of privately held companies and 2977 completed takeovers of publicly held companies in the US announced between January 1, 1986 and December 31, 2003.

Methodology

Statistical distribution tests and regression modeling are employed to examine the differences between acquisitions of private and public companies. Shareholder gains are measured using market adjusted abnormal returns, which are compared between samples and regressed against several factors to find possible differences.

Results

Shareholder gains to acquirers of private companies are found to be significantly positive and larger than gains to acquirers of public companies. Interestingly, also target shareholders seem to gain more if the target company is a private company. This is consistent with better bargaining powers of owners of private companies and on the other hand, the monitoring and the signaling effect of a new blockholder in the merged company. Acquirers of private companies are found to experience significantly larger abnormal returns in stock offers than in cash offers, which is consistent with the monitoring hypothesis. However, cash offers are found to be the dominant payment method in acquisitions of private firms, the proportion of cash offers is also significantly larger than in acquisitions of public firms, even after accounting for various firm size effects. The time it takes to complete the transaction, i.e. time in days from the announcement of the acquisition to its completion, is found to be significantly smaller in acquiring a private firm than in acquiring a public firm, which is expected due to the more concentrated ownership structure and less bureaucracy involved.

Key terms

Merger, acquisition, abnormal return, private company

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1 Introduction

1.1 Background and motivation for the study

Mergers and acquisitions (M&A) have been extensively studied in the finance world, however nearly all of the studies have been concentrated on the M&A of publicly traded companies completely setting aside the vast amount of transactions involving companies that are not publicly traded. The volume of acquisitions involving privately held firms measured by the number of transactions a year has grown rapidly during the recent years and has far surpassed the volume of public target takeovers. Although the total dollar value of takeovers is still larger for public than for private companies, acquisitions of private companies form a significant part of the aggregate M&A activity.

Despite the large number of private firm acquisitions, authors have only recently started to give more attention to transactions involving privately held targets. However, most of these studies only introduce separate findings as a by-product of other focuses in their studies and do not study the effects together. Generally there are very few research papers that have distinctively concentrated on private firm takeovers altogether.

The unique characteristics of private firms may have implications on M&A that are different from public firms. For one, private firm shares are considerably less liquid than public firm shares that are openly traded in the market. It may be that private firm shares are traded with a liquidity discount, which could be a source of higher abnormal returns to acquirers. Also, ownership structure in private firms is usually more concentrated than in public firms. Thus, acquiring a public firm with stock can be paralleled with new stock offering and generally results in a negative share price reaction, since it signals the market that the acquiring firm stock may be overvalued. However, acquiring a private firm with stock is more similar to private placement, which has found to have a positive share price reaction, see e.g. Herzel and Smith (1993).

This paper will try to fill in the research gap and contribute to the existing M&A literature by examining the differences in acquisition characteristics, shareholder returns and factors that affect the returns in acquisitions of private and public firms. This thesis extends the current literature of private firm takeovers by summarizing the separate findings and hypotheses

presented in other papers and examining their effects simultaneously employing a fairly large dataset of 10216 private and 2977 public target transactions from 1986 to 2003.

1.2 Research problem

The purpose of this paper is twofold. Firstly, I will examine if there are differences in the acquisition characteristics of private and public companies. Characteristics of interest include payment method, acquisition period length and various firm specific factors. Secondly, I will examine whether gains to shareholders from acquiring a privately held target are different from acquiring a publicly held target. I will also analyse the factors that drive shareholder gains. Target shareholder gains are also examined using a proxy for target premium. Most of the previous studies that have included these factors have concentrated only on public M&A and thus there are not many research results regarding the effects on private deals to refer to. Many of the factors are also studied separately and the effects still remain largely inconclusive among the researchers. This paper will try to contribute to the understanding of these effects and M&A shareholder gains in private target acquisitions.

The research problem can be expressed in the following sentence:

Are the acquisition characteristics and shareholder gains different in acquiring a private company versus acquiring a public company and what are the factors that affect these differences?

1.3 Objectives of the study

The research problem can be broken down into the following objectives:

- Review current literature and previous findings and hypotheses in M&A studies
- Identify characteristics that are unique to private firms and draw hypotheses on private M&A behaviour and shareholder gains
- Examine whether there are differences in the acquisition behaviour and characteristics of private and public firm takeovers and identify the factors that could have an effect on these differences

- Calculate abnormal returns for acquirers and offer price-to-book values to proxy the target premiums in acquisition announcements and examine if there are differences between private and public target takeovers
- Identify the factors that could have an effect on the returns to acquirers and premiums to sellers

1.4 Scope of the study

This study covers completed transactions that were announced between 1.1.1986 and 31.12.2003. This period was chosen because it covers most of the available relevant data. The data before year 1986 lacks some key items that are used in this study, such as shareholders equity figures. I include transactions, where the acquirer is traded either in NASDAQ, NYSE or NYSE OTC-list, thus the study is limited to examining phenomena on the US markets. This is mostly a question of data availability and reliability.

The study includes acquisitions of both private and public targets. Transactions where also the acquirer is a private company are left out. Similarly transactions where the target is a subsidiary of a public company are left out of the sample. To be included in the sample, bidder is required to acquire 100% of the target's shares. Transaction value is further required to be at least $100.000, which also excludes some observations where the transaction value is not disclosed.

1.5 Methodology

The sample covers 10216 completed transactions involving a private target and 2977 completed transactions involving a public target. The sample size is fairly large compared to previous studies on acquisitions of private targets. I employ various statistical methods in order to test the differences in acquisition characteristics of private and public company takeovers. I also employ linear and logit regressions to examine whether the effects persist after controlling for other factors. For the shareholder gains, I use event study methodology to examine the effects of acquisition announcement to acquirer shareholders. The effects are estimated by calculating market adjusted cumulative abnormal returns. I use [-1,+1] and [-5,+5] windows (1 to 5 days prior to announcement to 1 to 5 days after the announcement of the acquisition) in calculating the returns. Lacking a proper stock market based measure for

the premium paid to privately held targets, I use the offer price-to-book value of equity ratio as a proxy. The figure is widely used in the finance literature and its usefulness has been proven by for example Fama and French (1992). Cumulative abnormal returns and target premiums are further analysed with regression modelling to examine what are the factors affecting them and is there a relation between factors affecting the target premium and factors affecting the acquirer cumulative abnormal returns.

1.6 Key concepts

This section defines the key terminology used throughout the study. I use terms merger, acquisition, takeover and transaction interchangeably to refer to the transaction in general, except when specifically mentioned that I am referring to a particular type of transaction. I also use terms acquirer and bidder interchangeably to refer to the acquiring company.

1.6.1 Merger

Merger is a negotiated agreement between the shareholders of two companies to combine their businesses. The shareholders agree to pool their interests and to remain as joint owners of the new entity. Both parties also typically participate in the management structure of the new entity.

1.6.2 Acquisition

Acquisition is the process where a company buys a controlling interest in another company, often through tender offer for the target stock. The acquisition can be friendly or hostile and it can be financed with the acquirers stock, cash or both. The acquisition is considered friendly if the board of the target company advise shareholders to accept the offer. It is considered hostile if the board does not advise accepting the offer.

1.6.3 Tender offer

A tender offer is a direct offer to the shareholders of the target company to sell (tender) their shares at a specified price. The price typically includes a premium on the market price. The

offer can be for all or a fraction of targets shares and it can be contingent on the amount of shares tendered.

1.6.4 Acquisition premium

Acquisition premium is generally defined as the difference between the acquirer's bid and target's pre-announcement market value divided by target's pre-announcement market value. However, taken the absence of market values for privately held targets, in this study I will use the offer price-to-book value of target's equity or more commonly the market-to-book to proxy the premium paid to target shareholders. Thus, when speaking about acquisition premium I am referring to offer price-to-book value premium.

1.7 Outline of the paper

The thesis is organised as follows. Chapter 2 introduces the prevalent theories of mergers and acquisitions in general and reviews the historical developments of the M&A market, which are concentrated in distinct merger waves. This part also introduces past empirical studies on the M&A of public and private companies and introduces some of the motives and problems underlying M&A. Chapter 3 presents the hypotheses used in the empirical section and chapter 4 describes the data, methodology and the variables used to test the hypotheses. The empirical analysis and findings are presented in Chapter 5 and finally Chapter 6 summarizes the findings regarding acquisitions of private firms and presents concluding remarks and also suggestions for further research.

2 Theories and past research on mergers and acquisitions

This chapter will review some of the theories and studies on mergers and acquisitions that are related to this paper. The main focus is in financial economics, but some aspects of strategy and organizational research are also utilised.

2.1 Types of acquisitions

Mergers and acquisitions and can be divided into following types according to business relatedness and the stage in the production chain of the two companies:

- Horizontal acquisitions

  Merging companies in horizontal acquisitions operate and compete in the same kind of business and merging will generally result in synergy benefits through economies of scale, although other reasons for merging horizontally exist. Horizontal acquisitions are regulated by the government in order to control for the negative effects of companies gaining a monopoly position[1].

- Vertical acquisitions

  The acquirer and the target in vertical acquisitions operate in different levels of production chain, for example manufacturing and distribution. Sources of synergy for vertical acquisitions come from for example technological economies through simpler and more efficient processes the companies' products can be distributed to the market. The motives for vertical integration rest primarily on the fact that solid long-term contracts with distributors of products and suppliers of inputs are difficult to form and to control.

- Conglomerate Acquisitions

  Conglomerate acquisitions involve companies that operate in unrelated types of businesses; they are thus expanding to areas that are out of their traditional interest. Economic functions of conglomerate acquisitions can be explained by 1) investment

[1] Possible monopoly power of merging companies can be estimated for example with the Herfindahl-Hirschman Index (HHI), which is a concentration measure based on all companies' market shares on the market (the sum of squares of all companies market share, to be exact). The deal is challenged and examined by the antitrust authorities if the postmerger HHI is too high.

companies, such as mutual funds, 2) financial conglomerates, which allocate financial resources between companies, 3) managerial conglomerates, which share general management functions.

- Concentric acquisitions
  The companies involved in concentric acquisitions share specific management functions and capabilities they can use in both businesses. These include for example product line extensions and geographic extensions.

2.2 Merger waves

Mergers and acquisitions throughout history have occurred in waves and their characteristics have been related to the economical and cultural environment of their time and place. This chapter will review different explanations for the existence of merger waves and briefly go through the characteristics and differences between each major wave.

There is undeniable evidence on clustering of merger activity but the studies examining them have not reached a consensus on the causes of why merger waves occur. The main branches of explanations can be broadly categorized as behavioural and neoclassical, which I will present next.

2.2.1 Behavioural theory

Recent behavioural theories are based on the observation that merger waves occur at time, when stock market valuations are high. Shleifer and Vishny (2003) and Rhodes-Kropf and Vishwanathan (2004) argue that merger waves result from managerial timing of market overvaluations of their firms. They argue that bull markets lead managers to take the opportunity to use their overvalued stock to buy real assets of undervalued companies and thus mitigate the potential fall in stock price when valuations come down. Target managers with relatively short time horizons will accept the acquirers' temporarily overvalued stock. Overvaluation would thus lead to clustering of mergers.

Another theory suggests that imperfect information rather than managers' short time horizons would lead to high merger activity. Rhodes-Kropf and Viswanathan (2004) develop a model

where targets without perfect information will accept more bids from overvalued bidders during periods of high market valuations because they overestimate the synergy gains. The greater flow of transactions would result in a merger wave.

2.2.2 Neoclassical theory

Neoclassical explanations of merger waves are based on a disturbance in economic environment that leads to industry reorganization. Several studies (see Andrade, Mitchell and Stafford (2001), Morck, Shleifer and Vishny (1988), Jensen (1993) and Mitchell and Mulherin (1996)) support this view by finding that merger waves are a result of industry-level shocks, such as technological innovations, supply shocks, and deregulation. Jovanovic and Rousseau (2002) suggest that technological change and the subsequent increased dispersion in Tobin's q-ratios[2] leads to firms with high q-ratios taking over firms with low q-ratios in merger waves.

According to Mitchell and Mulherin (1996) corporate acquisitions are the most cost effective method for the industry to adapt to changes in industry structure induced by industry shocks, such as deregulation, changes in input costs and innovations in financing technology. Mergers and acquisitions represent a process needed to reallocate resources to the most efficient use.

Harford (2004) examines whether aggregate merger waves could be a result of market timing or a combination of industry shocks for which mergers facilitate change to the new environment. He finds that industry shocks, economic, regulatory or technological, initiate the merger waves. Merger waves occur in response to specific industry shocks that require large scale reallocation of assets. He also states that the shock leads to a merger wave only if there is sufficient liquidity in capital markets. This component also causes the industry merger waves to cluster even if industry shocks do not. Thus, in order for a merger wave to appear, economic motivation for transactions and relatively low transaction costs are required.

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[2] Tobin's q is a ratio devised by James Tobin of Yale University, Nobel Laureate in Economics, who hypothesized that the combined market value of all the companies on the stock market should be about equal to their replacement costs. Tobin's q is calculated as the market value of assets divided by their replacement cost and should on average equal 1. If the ratio is greater than 1 it means that the firm is earning a rate of return higher than that justified by the costs of its assets. The q-ratio is also used as a proxy for management capability, firms with high q-ratios being better managed than firms with low q-ratios.

Harford (2004) does not find that stock valuation measures motivated by market-timing theories would have significant explanatory power compared with an economic model including the liquidity component. He concludes that aggregate merger waves are caused by the clustering of shock-driven industry merger waves and not by attempts of managers trying to time the market. Table 1 summarizes the implicit predictions in behavioural and neoclassical theories of merger waves.

Table 1 Predictions of the Behavioural and Neoclassical theories for merger waves

	Neoclassical	Behavioural
Cause of industry wave	Regulatory or economic shock	Overvaluation and dispersion of valuation in an industry
Cause of aggregate wave	Industry waves occurring during times of high capital liquidity	Widespread overvaluation and dispersion of valuation across industries
Types of transactions	Both mergers and partial-firm acquisitions	Primarily mergers
Method of payment	No prediction	Stock
Pre-wave returns	High if capital liquidity is tied to asset valuation	High
Dispersion in pre-wave returns	No prediction	High
Market-to-book ratios	High if capital liquidity is tied to asset valuation	High
Observable industry shocks preceding waves	Yes	No
Measures of tight credit	Low if capital liquidity is important	No prediction

Source: Hartford (2004)

2.2.3 Characteristics of different major waves

In this chapter I will describe the major merger waves in the US and review some of the motives for mergers in each time period. Each merger wave has reflected underlying changes in the economic and technological environments. Some merger waves seem to reverse the effects of the last wave to a certain extent, for example the conglomerate mergers of the 1960s and the divestitures of the 1980s. Comment and Jarrell (1995) capture the essence in stating that economies of scope have been reversed in the 1980s. Results of Jarrell and Bradley (1980), Schipper and Thompson (1981), Asquith, Bruner and Mullins (1983) and Bradley, Desai and Kim (1988) suggest that the market for mergers has changed after 1969 because of government regulation. Before that time, cash tender offers were not regulated by the

government as they were considered private transactions between the acquiring firm and the target shareholders.

Bradley, Desai and Kim (1988) suggest three reasons that resulted in significant changes in the takeover environment in the 1980s. These are 1) the laissez-faire attitude of the Reagan Administration towards corporate takeovers, 2) the development of sophisticated takeover defence tactics and 3) the advent of investment banking firms that specialize in raising funds to finance corporate takeovers. They report that the total percentage abnormal returns from tender offers have remained remarkably unchanged between 7% and 8% throughout their sample period 1963-1984, although the dollar value has increased significantly.

Government regulation has had a significant effect on the merger markets through the decades and passing of new regulations seem to coincide with the end of merger waves[3]. Although the setting up of anti-takeover amendments and state laws are related to the end of each merger wave, they do not seem to be linked to the takeover activity in general. According to Comment and Schwert (1995) and Mitchell and Mulherin (1996) the fall in takeover activity is more linked to fundamental shocks in the economy than government regulations.

An interesting empirical finding is that merger waves seem to be clustered by industries. Each wave has a few industries that essentially make up the wave. The industries that are the most active are not the same in different waves. Andrade, Mitchell and Stafford (2001) examine top ranking industries by market values of acquiring firms in each decade and find negligible correlation. A summary of the key characteristics and driving forces for each time period is presented in Table 2.

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3 The Celler-Kefauver Act of 1950 allowed the government to declare illegal any merger that resulted in increased concentration. The Clayton Act of 1914 had already prohibited the acquisition of stocks of another company, if it resulted in significant decrease in competition. The act, however, had referred only to acquisition of stock, not that of assets. These acts lessened the importance of horizontal and vertical mergers in the 1960s. The Williams Amendment of 1968 added the tender offer into Securities and Exchange Commission's (SEC) jurisdiction and required the bidding firms to give detailed information on how the tender offer is financed and what kind of changes will be made to target's operations if the tender offer is successful.

Table 2 Merger wave characteristics

Time period	Dominant characteristics	M&A Drivers	Main industries involved
1895-1904	Horizontal M&A	Major improvements in economic infrastructure and production technologies (trans-continental railroad system, advent of electricity)	Heavy manufacturing
1922-1929	Vertical M&A, product extension	Improvements in transportation (motor vehicles), mass distribution, new methods of communication and advertising (radio).	Public utilities, banking
1965-1969	Conglomerate M&A, product extension	Demand uncertainty, instability in sales. Diversification to defend from increased uncertainties in one industry.	Aerospace
1981-1989	Divestitures, LBO's, hostile takeovers	International competition, technological, managerial and financial innovations	Oil & Gas, Textile, Manufacturing
1992-2000	Strategic mergers	Deregulation, globalization, technological and financial innovations (stock options).	Metal mining, Telecommunications, Financial services

Sources: Weston et al. (2001), Holmstrom & Kaplan (2001), Andrade, Mitchell and Stafford (2001).

The first merger wave documented here dates back as far as the turn of the 19th century. It was mainly characterized by horizontal mergers as regional companies expanded to form national companies after the completion of the national railroad system and the development of the national market. The movement resulted in highly concentrated industries and ended as the economy went into recession in 1903.

The next wave of 1920s was characterized by vertical mergers primarily in mining and metal industries and product extension mergers in food retailing, department stores and motion picture theatres. Mass distribution with low profit margins became a new method of doing business, which caused an increase in the scale of operations.

The conglomerate mergers of the 1960s can be mainly characterized by small or medium-sized companies that diversified to unrelated industries in order to defend themselves from the instability and uncertainty in their own industry (Weston and Mansinghka, 1971). Mergers reflected the idea that good managers can manage operations in unrelated industries. The mergers were primarily financed with stock. One reason given for the diversifications is that related acquisitions were restricted by the government antitrust policies. Shleifer and Vishny (2003) suggest an alternative motive; diversification to unrelated areas of business might have been more attractive, because within-industry target valuations were too high. Many conglomerate mergers did not have a sound strategic basis and resulted in significant sell-offs

later in the 1980s. Many conglomerates were also being sued on antitrust and tax matters. The results of Morck, Shleifer and Vishny (1990) support these findings. They report a statistically significant decline in the fraction of positive abnormal returns to acquirers in unrelated acquisitions comparing 1970s with 1980s. The results suggest that unrelated diversification was less attractive in 1980s. This is supported by the studies of Lichtenberg (1990) and Comment and Jarrell (1995), who find that the diversification rate of US firms declined considerably in the 1980s. Kaplan and Weisbach (1992) report similar results, they examine whether acquisitions made during the 1970s were divested by the end of 1989. They found that 60.2% of the acquisitions, where the acquirer and the target did not share any SIC[4] code, had been divested. In comparison, only 13.3% of the acquisitions, where the acquirer and target shared a four-digit SIC code, had been divested.

Studies show that returns to bidding firms have declined over time. Asquith, Bruner and Mullins (1983) show that returns to bidding firms are positive in their sample of acquisitions during 1963-1979 and especially so before 1969. Results of Servaes (1991) and Bradley, Desai and Kim (1988) support this and show that the returns to acquiring firms have declined considerably after 1981.

The merger activity of the 1980s was distinguished by leveraged buyouts (LBOs) and hostile takeovers. The method of payment was usually cash as the acquirers took on heavy debt to finance the deal. Mitchell and Mulherin (1996) document that almost half of major US companies received a takeover offer in the 1980s and that 40% of companies involved in takeovers were hostile takeover targets. The 1980s also saw the advent of defensive measures against hostile takeovers. According to Holmstrom and Kaplan (2001), the hostility was a 1980s effect and did not continue during the next merger movement in the 1990s. The 1980s became known as the deal decade for its record breaking deals. To some extent, diversifications served to correct for the excessive conglomerate movement of the 1960s. A popular view is that companies sought to reverse the prior diversifying acquisitions and concentrate on core activities.

The 1990s saw the largest merger movement in history. Most of the acquisitions were financed with stock and the companies typically operated in related industries. Consistent

[4] Standard Industrial Classification

with the "friendly" atmosphere, the average transaction involved only one bidder and 1.2 rounds of bidding. Andrade, Mitchell and Stafford (2001) examine the effects of industry deregulation to merger activity and find that nearly half of merger activity in the 1990s occurred in industries that were classified as having undergone substantial deregulation[5]. This result indicates that deregulation was one of the key drivers for merger activity in the 1990s.

Holmstrom and Kaplan (2001) report that management focus switched from being loyal to the company in the 1980s to being loyal to the shareholder in the 1990s. This can be partly attributed to the increased use of management stock options.

[5] These industries were banks and thrifts (1994), utilities (1992) and telecommunications (1996).

2.3 Motives for Mergers and Acquisitions

Mergers and acquisitions are perhaps most commonly seen from the efficiency point of view, two companies merge because they see that they gain from operating together compared to functioning as separate entities. However, several studies report negative to zero returns to acquiring firms at announcement date. Knowing this, why do firms perform acquisitions? In this chapter I will review motives for M&A and link them to studies on gains from M&A.

Weston et al. (2001) divide M&A theories into four groups, I. Total value increased theories, II. Hubris and winner's curse theories, III. Agency problem theories and IV. Redistribution theories. Table 3 introduces a brief summary of these theories.

Table 3 Theories of mergers and acquisitions

I.	Total value increased
	1. Efficiency increases
	2. Operating synergy
	3. Diversification
	4. Financial synergy
	5. Strategic realignments
	6. The *q*-ratio
	7. Information
	8. Signaling
II.	Hubris: Acquirer overpays for target.
III.	Agency: Managers make value-decreasing mergers to increase firm size.
IV.	Redistribution
	1. Taxes – redistribution from government
	2. Market power – redistribution from consumers
	3. Redistribution from bondholders
	4. Labor – wage negotiation
	5. Pension reversions

Source: Weston et al. (2001)

2.3.1 Synergy and value increasing motives

Sirower (1997) defines synergy as increases in competitiveness and resulting cash flows beyond what the two companies are expected to accomplish independently. Managers who

pay acquisition premiums commit themselves to delivering more than the market already expects from current strategic plans.

A basic framework for evaluating merger gains presented was by Myers (1976). For example, let us assume that company A is considering a cash takeover of company B. Let V_A be the market value of company A and let V_B be the market value of company B. There are economic gains in merging if the market value of the combined company exceeds the sum of the market values of the separate entities:

$$(1) \qquad V_{A+B} > V_A + V_B$$

For the acquisition to be economically justifiable to company A shareholders, the net present value of the acquisition to them (NPV_A) must be positive. NPV_A is calculated as the gain from the acquisition to company A minus its cost. The gain to A's shareholders equals the value of the new, combined company V_{A+B} minus the pre-merger value V_A and the cost of the acquisition P_B:

$$(2) \qquad \begin{aligned} NPV_A &= \text{gain} - \text{cost} \\ &= (V_{A+B} - V_A) - P_B \\ &> 0 \end{aligned}$$

If A chooses to acquire B with its own stock instead of cash, the possible gains from the acquisition are shared between the old and the new shareholders of the combined company. For example, if B's shareholders get an x percent ownership in the combined company, then the price A pays for acquiring B will be xV_{A+B}. In this case, NPV_A will be:

$$(3) \qquad \begin{aligned} NPV_A &= (V_{A+B} - V_A) - xV_{A+B} \\ &= (1 - x)\, V_{A+B} - V_A \end{aligned}$$

In cash acquisitions, the costs of the merger are not affected by the gains. In stock acquisitions, however, the cost depends on the gains, because the gains come up in the postmerger share price.

Several different sources of value and synergy benefits have been documented in the literature. These theories address motives for acquisitions through efficiency gains.

The combination of two firms may gain from managerial synergies if they have relative differences in management competency. The firm with more competent management may be used to manage the functions of the new entity and to raise the total efficiency of the two firms. The managerial advantage can reside in specific functions such as production, marketing, research or in more generic management activities such as planning and control functions. The q-ratio, which is defined as the ratio of market value of its securities to the replacement cost of its assets, is also used to measure the management capabilities of a firm.

The literature (Morck, Shleifer and Vishny, 1989; Ghosh and Lee, 2000) identifies acquisitions that are motivated by correcting managements' non-value-maximising actions as disciplinary acquisitions. They report that takeover is the most effective method to change the target operating strategy. Non-disciplinary acquisitions, or synergistic acquisitions, on the other hand, involve acquiring companies with relatively profitable operations. The gains in synergistic acquisitions can come from increased market power, offsetting profits of one firm with tax loss reserves of the other, combining activities or eliminating overlapping functions.

Synergies that arise from shared use of common resources and competencies can be categorized as operational synergies. The merging companies must be somewhat related in terms of operations to capitalise on these gains. The combining firms may reach a critical mass in the market and gain synergy benefits through economies of scale. Firms may also gain operational synergies from spreading the costs of heavy investments and through more efficient utilisation of costly equipment. The Wall Street Journal Europe (Nov 18, 2004) writes about the merger of Sears, Roebuck & Co and Kmart Holding Corp., two large U.S. retailers: "The merger is an ideal solution for both companies, who have long suffered from inefficient operations and weak management." In this case, both companies have inefficient operations compared to the industry average. Both have once been the top performers in the market, but have since lost positions to competitors and the merger is expected to put them back on the map. Shares of both companies rose dramatically at the announcement, which suggests that investors agreed that the merger is beneficial for both companies and that significant sources of synergy exist.

Vertical integration, as described in section 2.1 may create synergies through more efficient coordination of different stages of operations. Synergies may also arise from the reduced need for bargaining and decreased transaction costs between companies taking care of different stages of operations.

Firms in related businesses may share specific management functions, but firms in unrelated industries, such as in conglomerate acquisitions, can only share more generic management functions. This suggests that firms in unrelated businesses would have fewer possibilities for synergy gains. However, research shows mixed results to gains on related and unrelated acquisitions. These results are further discussed in section 2.5.7.

Diversification synergies through acquisitions may come in many forms. From the employee-viewpoint diversification synergies are related to employee satisfaction and specialized knowledge that the employees and teams possess. Employees and managers value job security and the opportunity to do different tasks in the firm. By diversifying, the company creates more career opportunities and better job security for employees, which in turn makes employees less likely to leave the company, which may result in lower labour costs.

Specialized knowledge and teams created in the firm can be easier to move from a declining business activity within a company to a profitable one, as opposed to moving them entirely from one firm to another. If the company has reputational capital, it can capitalise on its existing reputation even in new business areas acquired through diversification. Firm reputation is valuable, because information is costly. Takeovers provide means of efficiently redeploying resources while minimising transaction costs and preserving firm specific values.

Another reason for diversifying is the diversification of wealth of the owner-manager, who has a large part of his wealth in the company and does not want to sell shares for control issues. An undiversified owner may pass investment decisions that an owner with his wealth diversified would otherwise make. However, studies show mixed evidence to synergies from diversification. Berger and Ofek (1995) show that an average diversified company holds a diversification discount rather than a premium when compared to a portfolio of similar single industry companies.

Although new markets and operations can be developed internally, acquisitions can be faster to execute and a preferred choice in cases where time frame of the expansion is critical. According to Weston et al. (2001) acquisitions are often the least cost method of establishing operations abroad.

Financial synergies to the merging companies may arise from the increased debt capacity, reduced uncertainty and variability of the cash flows of the combined firms and the increased capabilities of allocating financial resources internally. The firms can utilise their unused debt capacity more efficiently, if one firm has relatively low amount of debt and the other is working at its optimal debt capacity. The combined firm can increase the use of debt and gain tax advantages larger than that of the two original companies independently. The variance of the cash flows of the merging companies is reduced, which means advantages in better financial planning and improved use of internal resources to fund growth opportunities.

Varaiya (1988) and Slusky and Caves (1991) find that acquirers anticipation of ex ante synergistic gains is not related to the acquisition premia. From several different measures of synergy they find that only debt capacity synergy is positively related to acquisition premia.

2.3.2 Hubris and agency problems

Succeeding in an acquisition is not automatically good news, it may also mean that the bid won, only because it overestimated the value of the target the most and nobody else was willing to pay that much. This phenomenon is commonly called the winner's curse and it applies to takeovers as well as it applies to any auction involving an object with uncertain value. The highest bidder will typically pay too much. Roll (1986) examines the winner's curse in takeovers and suggests that managers of the bidding firms are infected by hubris and overpay for the targets because they overestimate their own abilities to run them. Supporting the hubris hypothesis, Seyhun (1990) finds evidence that managers tend to increase their net stock purchases around acquisitions that produce small, negative abnormal returns.

Another view is that managers may overbid because they pursue their own personal goals rather than the best interests of the shareholders. Morck, Shleifer and Vishny (1990) suggest that a manager is willing to sacrifice the market value of the firm and overpay for the target if the acquisition provides him with large personal benefits. Mueller (1969) introduces the

managerialism hypothesis in acquisitions and suggests that managers are tempted to increase the size of the firm even with investments that do not meet the return requirements, because manager compensation is assumed to be positively related to firm size. Mueller's theory suggests that acquisition activity is a manifestation of agency problems, where inefficient management make investments that support their own rather than shareholders goals.

Jensen (1986, 1988) argues that agency costs and the conflict of interest between managers and shareholders regarding corporate strategy and the use of excess cash flow is a significant source of takeover activity. Jensen points out that cash flow in excess of what is needed to fund all NPV positive projects may induce the management to make value decreasing acquisitions and that excess cash should be paid out to shareholders. Paying out all free cash flow reduces the management's possibilities to exert control and it also subjects them to more financial market scrutiny when they seek additional funding. Jensen suggests a further measure to ensure that managers will pay out the excess cash also in the future. By issuing debt in exchange for stock managers are effectively bonded to paying out excess cash.

Haunschild (1994) finds that professional firms used in advising acquisitions affect the premia paid by acquirers. Hayward and Hambrick (1997) find three indicators of CEO hubris that are positively related to premia paid in acquisitions: recent media praise for the CEO, a measure of CEOs self-importance, and the recent performance of the acquiring company. The relation is stronger in cases where CEO is also the chairman of the board and the board members consist largely of company directors.

Jensen and Meckling (1976) formulate that agency problems arise, when managers own only a small fraction of the company shares. The managers may work less vigorously and use more perquisites than otherwise, because they will only bear a small fraction of the costs according to their share ownership. Individual owners of companies with a wide and dispersed shareholder base may also lack the incentive and the power to monitor the efforts of a manager.

Manne (1965) argues that takeovers and the market for corporate control acts as a disciplinary measure for inefficient management. The share price of a company is highly correlated to the efficiency of its management. If the existing management is inefficient, in the sense that they are not generating returns as large as what could be accomplished with another management

team, the share price of the company will decline relative to other companies in the industry. The lower the share price relative to what could be accomplished with a more capable management team, the higher the benefit from replacing the management will be. Thus, a takeover will become more attractive and more probable as the share price declines because of inefficient management. Managers knowing this will refrain from making value destroying decisions.

Weisbach (1994) examines CEO characteristics and the relation to acquisitions and divestitures made by their companies and finds that unsuccessful acquisitions tend to be divested after the CEO who made the acquisition leaves the company.

2.3.3 Redistribution

Redistribution theories suggest that the gain from an acquisition results from a redistribution of wealth from other stakeholders.

Tax gains represent a redistribution of wealth from the government to shareholders. Tax issues are not likely the major driving force in a merger, although tax effects in a merger may be substantial. The market power hypothesis predicts that mergers reduce the competition in the industry and may lead to monopoly effects. This would suggest higher consumer prices and thus value transfer from consumers.

The empirical evidence is not conclusive. There is much evidence that concentration is a result of vigorous competition, which causes the composition of leading firms to change over time. Changes in leverage of a company after a merger may result in a negative impact on bondholders. Most studies, however, do not find any evidence of stockholders gaining on the expense of bondholders in mergers, even if the leverage has been increased (see e.g., Asquith and Kim, 1982). In some cases where a breach of trust occurs, firm may gain at the expense of labour. These involve reduction of labour costs or the reversion of pension plans.

2.4 Research on acquisition performance

A bulk of the M&A research is concentrated on public companies and examine announcement day returns and premiums paid to the target company shareholders. However, there are very few studies altogether that study M&A in private markets. This section includes studies of both public and private M&A, adapted to the objectives of this paper where applicable.

Most public market acquisition studies try to find the answer to the question of why companies make acquisitions although returns to bidders are generally negative. Hansen and Lott (1996) offer an explanation to negative abnormal returns to bidders: If the acquiring firm shareholder is diversified, the negative returns to bidder are irrelevant, because they will be offset by the gains from the target firm's shares. The division of the gain does not matter, because the total gain will still be positive. However, this explanation will only hold if the acquiring firm shareholder also holds shares in the target firm. In the case of the target being a private firm, this will not likely hold. In those cases companies are expected to make acquisitions that will increase their own value. Thus, the returns to acquirers are expected to be higher for private than for public firms.

Schipper and Thompson (1983) suggest that the lack of return may simply result from a failure to measure merger gains correctly. They argue that the expected return from a merger program should be capitalized at or before the announcement of the merger program. They indeed find evidence of share price run-up some months preceding the announcement, which they attribute to probable leakage of information.

Hansen and Lott (1996) go further to develop an auction model, where the bidding company shareholders own both bidder and target shares. In their model, the bids will be higher compared to when the ownership is separated and sometimes even exceed the bidders' own value of the target. By bidding higher than their own value of the target, the bidder forces the competing bidders to pay more in the event they win and the losing bidder's shareholders will gain more from their shares in the target. When bidding firm's shareholders are diversified over target, the bids will be higher than when shareholders are not diversified. They also hypothesize that positive tax effects may drive the optimal price over the direct value of the target. The diversified shareholders may approve overpaying for the target if they know their overall gain will be larger.

2.4.1 Research on the acquisition of private firms

The M&A studies in finance literature have generally focused on analysing public firms. This is probably because data for public firms is easier to obtain than data for private firms, but perhaps also because private M&A account for only a fraction of the value of public M&A and thus does not constitute a major factor in the M&A market. However, measured by the number of takeovers, acquisitions involving privately held targets far exceed the acquisitions involving public targets. It is evident that the acquisitions of privately held targets are an important part of the aggregate M&A market.

Private firms' ownership is generally more concentrated than public firms', which may be associated with lower internal agency conflicts within these firms. The smaller agency conflicts in turn may give them relatively better bargaining power when confronted by a potential buyer in acquisition situations. Ghosh and Ruland (1998) support these findings and report that public companies with high managerial ownership have substantial bargaining power. Strong bargaining power provides private firms a valuable choice over the method and timing of how and when to sell the company. Ang and Kohers (2001) additionally note that private firms do not have to deal with public pressure from less informed outside investors, who may push the firm to sell at times when the shares are undervalued by the market. The freedom of market timing allows private firms to wait for the highest offer.

Chang (1998) examines bidder returns at the announcement of 281 takeovers of privately held targets during 1981-1992. He finds that, on average, acquisitions financed with stock are associated with positive abnormal returns to bidders and cash acquisitions are associated with zero abnormal returns to bidders. The results sharply contrast the negative returns from acquiring a public firm with stock. Chang also analyses the creation of large blockholders in acquiring firms and finds that acquirer returns are positively correlated with the presence of a new blockholder from the target and the amount of common stock issued to target shareholders. He presents three hypotheses on bidder returns when target company is privately held. The limited competition hypothesis states that if the takeover market is competitive, there should not be any positive bidder gains from an acquisition, unless there are bidder specific synergy gains. Bidders can experience positive gains if the competition is limited, for example because of information or search costs for private targets. The

monitoring hypothesis suggests that acquiring private firms with stock creates outside blockholders, because private firms' ownership is usually concentrated. The creation of outside blockholders can serve as an effective monitor of managerial performance and thus increase the company's value. On the other hand, increased ownership concentration may also lead to increased managerial entrenchment and decrease value. The information hypothesis for public acquisitions suggests that companies offer stock as a method of payment when they believe their stock is overvalued, which causes a negative price impact. For private targets, however, this problem can be mitigated through the disclosure of private information of bidding firm managers to target shareholders. Private targets shareholders will end up holding a substantial amount of bidder's stock, which gives them an incentive to assess the bidding firms offer carefully. Their willingness to hold a large block of shares conveys positive information to the market resulting in a positive impact on share price.

Fuller et al. (2002) notice that the market gives positive or negative share price reaction to the same acquirer depending on whether it acquires a private or public company, even after controlling for the method of payment. The differing share price effect is thus not due to specific characteristics of acquirers of private or public companies, but rather due to characteristics of target or its relation to the acquirer. Fuller et al. offer one explanation to the differing share price reactions for acquiring private versus public targets. They suggest that acquirers receive a better price when buying private targets. They further attribute this to the liquidity effect, since private firms cannot be bought and sold as easily as public firms. Private firms would thus trade on a liquidity discount, which the acquirer captures when acquiring a private firm. Fuller et al. also acknowledge tax implications and the effects it might have on preferred method of payment. If the payment is made in cash, the shareholders of private firms are faced with immediate tax implications. However, if the payment is made in stock, the tax implications are deferred. If the tax deferral option is valuable to owners, then they may accept a discounted price (discount at most equal to the value of the option) for payments in stock.

Koeplin, Sarin and Shapiro (2000) examine the private company discount. They identify a set of private company acquisitions and for each transaction find a matching public company from the same industry that is comparable in size and was acquired around the same time. They compare the valuation ratios paid for both pairs and define the discount as the

percentage difference between the two. They find the domestic private target discount to be around 20% relative to public companies.

Ang and Kohers (2001) utilize SDC data and examine a large sample, over 7070 acquisitions of private targets during 1984-1996, and compare them with a sample of 5302 acquisitions of public firms. They find that pricing factors that contribute to excess premiums are negatively related to market responses to merger announcements and that the market response is strongly related to the excess premiums. Acquisitions of privately held targets in general are reported to yield substantial gains for both target and acquirer. They attribute the relatively high premiums to the stronger bargaining power and timing options of private companies.

Moeller et al. (2004) find two explanations to the higher abnormal returns of all equity or mixed offers. As the ownership of the private firm is generally highly concentrated, the owners can obtain inside information about the true value of the acquiring firm stock they receive as payment for their shares and this conveys favourable information to the market. They also recognise the monitoring hypothesis as discussed in Chang (1988), but find that abnormal returns to acquirers of private firms in equity offers do not increase with the size of the transaction, which is inconsistent with the monitoring hypothesis, which suggests that monitoring incentive would increase with blockholder's stake. They also find that relative size often included in abnormal return studies may not capture the effects that acquirer and target size have on abnormal returns in cases where equity is used as a method of payment. Generally, if a dollar spent on acquisition has the same positive return regardless of the size of the acquisition, then abnormal returns should increase with relative size. However, in equity offers, the total number of acquirer shares outstanding will increase with the size of target at the completion of the acquisition. If there's a downward sloping demand curve for acquirer shares, then abnormal returns will fall with the relative size of the acquisition. The opposing effects may have been a source for differing results for the relative size effect in previous studies.

2.4.2 Research on acquisition of technological competencies

Companies in high-tech industries may provide an investor or acquirer potentially larger gains than companies in lower growth industries, but the uncertainty of the gains is also higher. The value of a company that is developing a new product or service depends heavily on the

success or failure of that product. While the returns can be large if the product is a success, they can also be nonexistent. The acquirer of a high-tech company is faced with a difficult task of valuing their R&D investments and growth opportunities, since the development stage cash flow of the company is often negative.

There are not many studies that have concentrated specifically on the acquisition of high-tech companies, many M&A papers include a hi-tech dummy variable, but these studies generally do not include items such as R&D expenses, which are key issues in valuing high-tech companies.

Stock market valuation of R&D investments has been studied by several papers. For example Sougiannis (1994) examines the long run impact of R&D on corporate accounting earnings and market value of equity. He reports on average a two-dollar increase in profit and a five-dollar increase in market value over the subsequent seven-year period for every dollar spent on R&D. He also divides the effects of R&D into direct and indirect with the indirect effect being significantly larger. The direct effect relates to new information conveyed by the R&D variables directly and the indirect effect is the capitalized value of realized R&D benefits reflected in earnings.

Lev and Sougiannis (1996) study the relationship of capitalized R&D to share prices. They find that R&D capital is positively correlated with companies' future excess returns and that the correlation is statistically reliable and economically relevant.

Lev and Sougiannis (1999) examine the book-to-market phenomenon, i.e. the positive relation between book-to-market ratio and subsequent stock returns, and find that R&D capital is significantly related to subsequent stock returns, when other factors such as book-to-market, price-to-earnings, beta, size and leverage are controlled. They also find that the book-to-market effect is mitigated in companies that are intensive in R&D.

Chan, Lakonishok and Sougiannis (2001) examine whether stock prices appropriately incorporate the value of firms' R&D investments and find that price distortions can arise from expensing rather than capitalizing R&D costs. They find that historical share price returns are on average the same for R&D intensive firms and firms with no R&D. Firms with high R&D relative to market value of equity, however, gain excessive returns.

Acquisitions also act as substitutes for in-house R&D, a number of high-tech companies use acquisitions instead of investing in their own R&D to build market position quickly in response to shortening product life cycles. "If you don't have the resources to develop a component or a product within six months, you must buy what you need or miss the opportunity." –John Chambers, President and CEO, Cisco Systems Inc.

One of the challenges acquirers of R&D competencies must face is holding on to key people. The expertise of these individuals is far more valuable than the technology they have developed. The core value of the acquired company can walk out the door immediately after the acquisition. Usually the key people have been tied to the company with stock ownership plans, which can potentially make them rich in the event of an acquisition. This may make them even more prone to leave the new company, if they do not like the way things are run. These issues make the cultural due diligence especially important. (Bower, 2001)

2.4.3 Long run post merger studies

Agrawal, Jaffe and Mandelker (1992) calculate CARs for 1 through 5 years after the acquisition on 937 mergers and 227 tender offers that took place during 1955-1987. They adjust their results to firm size and beta effects and report a statistically significant negative 10% return over five years following the acquisition. They further divide the time period into five subperiods, 1950s, 1960s, 1970s, 1980s and 1975-1984 and report significant negative average returns for each subperiod, except the 1970s for which the results are insignificant. They also divide the sample into conglomerate and non-conglomerate mergers according to the target and the acquirer industry relatedness measured by the 4 digit Standardised Industrial Classification (SIC) codes. Contrary to the general opinion, they find that the abnormal returns are worse for non-conglomerate than for conglomerate mergers.

In line with the signalling hypothesis, Agrawal, Jaffe and Mandelker (1992) report that long-run performance for stock financed tender offers is worse than for tender offers financed with cash. Although they do not quite agree with the signalling hypothesis in this context, since stock prises in efficient markets should adjust to corporate signals immediately and not over a period of several years.

2.5 Determinants of merger gains and their distribution

This section reviews factors that are found to have an effect on acquisition performance. I include elements from studies of announcement period returns, as well as studies of long-run returns.

2.5.1 Method of payment

Effects of method of payment to acquirer or target returns have been extensively studied in the finance literature. Academic studies usually classify deals as being all cash, all stock or mixed.

Several studies show that abnormal returns for both target and bidder are larger for all cash takeovers of public firms. Myers and Majluf (1984) develop a mathematical model and show that the rational investor reaction to stock issue is negative. Their model suggests that stock issues always result in a negative impact on share price, when all other information is held constant. The reasoning is that managers are more likely to fund acquisitions with equity, when they perceive the company stock is overvalued by the stock market. Knowing this, investors bid down the share price, when they observe stock financed acquisitions. Cash acquisitions, in contrast, are generally associated with debt finance. According to free cash flow theory, increasing debt levels will increase the cash flow requirements, which will limit the amount of cash that is available to be invested at below the cost of capital or wasted through organizational inefficiencies (Sirower, 1997).

Servaes (1991) reports 10% larger gains for all cash transactions compared with all stock transactions. He also finds that total returns are negative in all stock takeovers. Andrade, Mitchell and Stafford (2001) report higher returns for both acquirer and target in cash funded acquisitions after controlling for deal size. Travlos (1987) and Franks, Harris and Titman (1991) find significant negative returns to acquirers in equity funded transactions.

Amihud, Lev and Travlos (1990) examine the effects of method of payment together with managerial ownership and conclude that the negative returns to acquirers in equity financed transactions are related to firms with low (less than 5%) managerial ownership. For firms with a relatively large managerial ownership the average returns were close to zero, although

statistically insignificant. Ghosh and Ruland (1998) note that stock acquisitions are associated with targets with high managerial ownership and relate the findings to job retention of target managers. They find that the target firm managerial ownership is even more important factor in explaining the method of payment than acquirer managerial ownership.

Eckbo, Giammarino and Heinkel (1990) examine Canadian acquisitions and find that acquirer returns for the announcement month are significantly positive and larger for mixed offers than for plain stock or cash. They develop a model, which predicts that information asymmetries from both sides may lead to an optimal mix of cash and stock.

Travlos (1987) examines whether payment method effects are different for different acquisition types. He finds no significant differences in abnormal returns, whether the cash or stock transaction was a merger or a tender offer. Both mergers and tender offers exhibited negative abnormal returns if financed with stock. He also examined whether the exclusion of unsuccessful bids introduces a bias in the sample in case the probabilities of failure are different for stock and cash deals. A bias might explain the difference in abnormal returns. He finds, however, that stock and cash offers do not have a significantly different probability of failure, which supports the fact that the difference in abnormal returns between stock and cash deals is not a result of a sample bias, but a reaction to new information.

2.5.2 Relative size of target and acquirer

Relative size of the acquisition has yielded mixed results in the finance literature. Asquith, Bruner and Mullins (1983) divide their sample into two groups based on whether the target equity value is less than or greater than 10% of the acquirer equity value. They find that abnormal returns in the group where target equity value is larger than 10% of the acquirer are significantly larger than in the group where the relative equity value is less than 10%.

Moeller et al. (2004) examine 12023 acquisitions by public firms from 1980 to 2001 and find that although the equally weighted abnormal return is positive 1.1%, acquiring firm shareholders lose on average $25.2 million. They find the announcement period abnormal return for acquiring firm shareholders roughly two percentage points higher for small acquirers than for large acquirers. They find the results to be unrelated to method of payment and whether the target is public or private. Fuller et al. (2002) on the other hand find a

positive relation between relative size and acquirer returns for private and subsidiary targets. Servaes (1991) finds similar results and document that returns to acquirers are higher when (logarithm of) the relation of target to acquirer market value is higher.

Agrawal, Jaffe and Mandelker (1992) find contrary results, in their study of long-run post-acquisition returns they find no relation between post-acquisition performance and the relative size of the acquisition.

2.5.3 Acquirer cash reserves

Excessive cash is essentially free cash flow that has been stockpiled in the company. As described in section 2.3.2 and documented by Jensen (1986), large amounts excessive of cash may cause agency problems.

Harford (1999) finds that acquisitions of firms that have excessive cash reserves are value decreasing and that the subsequent operating performance of the combined firm is poorer than that of cash-poor acquirers.

2.5.4 Pre-acquisition performance

Morck, Shleifer and Vishny (1990) examine 326 US acquisitions from 1975 to 1987 and find that poor pre-acquisition target performance is related to poor post-acquisition acquirer abnormal returns. They also measure past performance of the acquiring firm based on stock returns and growth of income relative to the industry average three years prior to acquisition and find that good prior performers earn positive significant returns whereas poor prior performers earn negative significant returns.

2.5.5 Acquisition premium

Sirower (1997) studied acquisition premiums and subsequent returns to acquirer and found the premium to be negatively and significantly related to returns. Ang and Kohers (2001) studied the relation of factors affecting premiums for private targets proxied by offer price-to-book and acquirer cumulative abnormal returns and found similar evidence.

2.5.6 Multiple bidders

Several studies (see for example Asquith, Bruner and Mullins, 1983; Schipper and Thompson, 1983; Frank, Harris and Titman, 1991 and Servaes, 1991; Kaplan and Weisbach, 1992) document that returns to target shareholders increase and returns to acquirer shareholders decrease at the presence of multiple bidders. The winning bidder of the contest may end up paying too much and experience the winner's curse. All studies on multiple bidding contests seem to be uniform in that there is a statistically significant negative relation between the number of bidders and acquirer abnormal returns.

2.5.7 Industry relatedness

Industry relatedness studies examine whether the similarity of the target's and the acquirer's businesses has an effect on the acquisition outcome. The most popular method of doing this is comparing the companies' SIC codes. The more matching codes, the more related the companies businesses are. Usually three to four matching digits are considered related.

Intuition says that related acquisitions should be a potential source for more synergy and thus they would also perform better than unrelated acquisitions. It is often claimed that managers of acquiring firms are not familiar with the target industry and thus cannot perform up to par with related acquisitions. The research results, however, are inconclusive.

Morck, Schleifer and Vishny (1990) report that related acquisitions are more likely to succeed than unrelated, i.e. diversifying or conglomerate acquisitions. They also find a positive, although not significant, relation between acquisition relatedness and subsequent acquirer returns. Sirower (1997) finds similar results.

Seth (1990), however, after controlling for the effects of acquisition type and firm size, finds that on average value is created in both unrelated and related acquisitions and that related acquisitions on average do not seem to outperform unrelated acquisitions. Sirower (1997) also hypothesises, that relatedness will not have main effect on acquiring firm performance and that there is no reason to believe that joining two firms that are related in every way will create synergy. He also notes that pursuing an unrelated acquisition strategy might be a signal that the current line of business lacks good investment opportunities.

Agrawal, Jaffe and Mandelker (1992) find contrary results to earlier studies; they employ a nearly exhaustive dataset of public company acquisitions on NYSE find statistically significant results that unrelated acquisitions outperform related acquisitions over a five year period.

2.5.8 Tobins Q

Lang, Stulz and Walkling (1989) find that acquirers with high q-ratios gain significantly more from an acquisition than acquirers with low q-ratios. Similarly, targets with low q-ratios benefit more from an acquisition than targets with high q-ratios. If the q-ratio is interpreted as a measure of how well the company is being managed, these results imply that well managed companies make better acquisitions. Well managed companies benefit more from making acquisitions than poorly managed companies and poorly managed companies benefit more from being taken over than well managed companies. The highest total gains come from a well managed (a high q) company taking over a poorly managed (a low q) company. Similarly, the worst returns are attributable to a poorly managed (a low q) company taking over a well managed (a high q) company. Servaes (1991) confirms these results while controlling for several factors, such as payment method, hostility, decade and the relative size of the target and the acquirer, that might have had an effect on the results in LSW's study.

2.5.9 Managerial ownership

It is hypothesised that managers with relatively large holdings of stock in their companies are reluctant to use stock to fund acquisitions, because it will dilute their share holdings and risks the loss of control of the company. Amihud, Lev and Travlos (1990) report that bidders with large insider ownership are more likely to finance acquisitions with cash than stock. Ghosh and Ruland (1998) focus on target firms' managerial ownership and find that stock acquisitions are associated with high managerial ownership in the target company. Managers are also found to retain their jobs more likely after the acquisition if it is financed with stock.

2.5.10 Deal attitude

A hostile offer is one that will be publicly refused by the target firm. It may do so to avoid being acquired or to bargain better terms. This reaction should result in decreased success

rates of hostile takeovers and increased average premiums paid in hostile takeovers. Servaes (1991) in his study of 704 mergers and tender offers during 1972-1987 report that abnormal returns to bidding firms are on average 4% lower in hostile takeovers than in friendly takeovers. Target firms, on the other hand, gain 10% more in hostile takeovers. Franks, Harris and Titman (1991) find supporting evidence. Schwert (2000) reports that hostile offers are less likely to result in a successful takeover. They also report mixed results on premiums paid in hostile takeovers; deals that are classified as hostile by SDC receive slightly higher premiums, but the whole sample with both successful and unsuccessful transactions averaged out result in slightly lower premiums.

2.5.11 Target R&D expenses and growth

Laamanen (2002) and Lev and Sougiannis (1996) report that the amount of target R&D intensity and R&D growth rate is positively related to the premium paid in acquisitions of high-technology based companies. Companies with larger R&D expenses and stronger R&D growth rate receive a higher premium. Laamanen (2002) argues that lower asymmetry of information between acquirer and target when compared to market and target is expected to cause acquirers to systematically value target's R&D investments higher than the market. Morck, Shleifer and Vishny (1990) find evidence that buying a fast growing company results in lower abnormal returns for acquirer than buying a slow growing company.

2.5.12 Target public status

Hansen and Lott (1996) examine 252 acquisitions of private and public firms and find that acquirer returns are higher when the target is a private firm. They test their results against possible biases in payment method, target size an degree of competition. Similar results are later found by Chang (1998), Ang and Kohers (2001), Fuller et al. (2002) and Moeller et al. (2004). A more detailed discussion of these papers and the effects of private target acquisitions can be found in Chapter 2.4.1.

2.5.13 Merger type

Evidence for the performance effects of mergers and tender offers are mixed. Studies such as Jensen and Ruback (1983) and Huang and Walkling (1987) document that returns to target

shareholders are smaller in mergers than in tender offers. Fowler and Schmidt (1988) report that returns to acquirers are significantly smaller in tender offers than in mergers. Datta, Narayanan and Pinches (1992) find completely contrary results. Jemison and Sitkin (1986) find similar results and hypothesise that mergers should perform better since they have a longer planning period and they are more "friendly" in nature.

Sirower (1997) notes that mergers and tender offers both command significant acquisition premiums and whether an acquisition is executed through a merger or a tender offer should not have an independent effect on performance. If there is an effect it is meaningful in relation to the acquisition premium. The observed performance differences in previous studies may simply be caused by other factors that affect the acquisition premium, such as tender offers being contested more than mergers, which raises the average acquisition premium for tender offers.

2.5.14 Merger completion

Asquith, Bruner and Mullins (1983) report larger two day abnormal returns for targets in mergers that are eventually completed. Returns for bidding firms do not seem to be related to the merger completion. Results of Dodd (1980), Asquith (1983) and Ruback (1983) support this. They report no difference in announcement day abnormal returns for successful or unsuccessful bidders. Dodd (1980) further reports that there is a positive (negative) market reaction to the target upon the subsequent completion (cancellation) of the acquisition.

3 Hypotheses

According to the theories about synergy and efficiency in M&A, acquirer shareholder returns should be positive, if value is created. However, if managers are acting on their own personal goals and not on the best interests of the company, according to hubris and agency problem theories as discussed in Chapter 2.3.2, the acquirer returns may be negative. Existing research results have quite consistently reported negative returns to acquirers of public companies. I will test this with the following hypotheses:

H 1: Gains to acquirer shareholders from acquiring a public company are on average negative

Acquirers of private targets may benefit from the lack of publicity surrounding private targets, which would decrease the likelihood of hubris-motivated takeovers. Without the pre-merger publicity commonly associated with public companies, acquirer of a private firm can more easily break off the negotiations if the price is not right, without suffering a hit to its prestige. Since private companies are less liquid investments than public companies, it is suggested that private companies trade with a liquidity discount (see Chapter 2.4.1). The competition for private targets may also be limited, which increases the likelihood of underpayment and may be a reason for a positive acquirer share price reaction. The positive share price effect of acquiring a private firm with stock, which is examined with H 4, also affects this hypothesis. Since previous studies have found that acquiring a private target has a positive reaction to acquirer share price, I hypothesise the following:

H 2: Gains to acquirer shareholders from acquiring a private company are on average positive

To sum up these two hypotheses and to test the difference between returns to acquirers from acquiring a private company versus acquiring a public company, I additionally formulate the following hypothesis:

H 3: Gains to acquirer shareholders are larger from acquiring a private company than from acquiring a public company

Considering the information asymmetries inherent in buying private firms, which do not have the analyst coverage or information disclosure requirements that public firms have, stock

payment is a less risky option for the acquirers. Private firms are also generally younger and thus are not as established in terms of their markets and customers and thus may have a less stable cash flow, which adds to the increased risk.

The monitoring hypothesis formulated by Chang (1998) states that the creation of outside blockholders can increase firm value, since the blockholders can monitor managerial performance or facilitate takeovers. Acquiring a private company with stock tends to create such an outside blockholder because the targets are generally owned by a small group of shareholders as discussed in Chapter 2.4.1. Additionally, in stock offers, the target shareholders have an incentive to assess the bidding firm carefully, because they will be holding a considerable amount of the bidding firm stock. Accepting their stock offer thus conveys favourable information to the market about the bidding firm, resulting in a positive share price reaction. For these reasons, I hypothesise the following:

H 4: Gains to acquirer shareholders from acquiring a private company with stock are larger than gains when acquiring with cash.

Privately held firms' ownership is usually very concentrated, which may mean lower internal agency conflicts. This would give them better bargaining power than often relatively dispersedly owned public companies. Ghosh and Ruland (1998) find that public target managers, with high ownership tend to have substantial bargaining power. Private companies may enjoy a larger freedom of timing in choosing the right time to sell. Because of pressure from uninformed outside investors, public companies may be forced to sell at a suboptimal time when the company's shares are undervalued.

These matters suggest that private companies may receive higher premiums than public companies. On the other hand, as discussed in Chapter 2.4.1, there is evidence of the existence of a liquidity discount associated with private targets when compared to public targets. This would in turn suggest that the premium for private targets is lower. If returns to acquirer shareholders are larger for private targets, it would be rational to expect that the target shareholder gains in turn are smaller. Thus I hypothesize the following:

H 5: Premiums to targets, proxied by the offer price-to-book value ratio, are smaller for private companies than for public companies.

According to Slusky and Caves (1991) acquirer will pay a higher premium if there is a good fit between the target and the acquirer. A good fit exists if the companies operate in the same industry so that the acquisition can be categorized as horizontal or vertical. Similarly, acquirer gains are expected to be higher because of the larger potential synergies. This leads to the following hypothesis:

H 6: Gains to acquirer shareholders as well as target premiums are larger in related than in unrelated acquisitions

Theoretically, using shares as payment implies that your shares are overvalued. However, when acquiring a private company, this is not entirely the case. If the target knows its value better than the acquirer, using stock as the method of payment forces the target to share any post-acquisition revaluation effects. This would suggest that acquirers use stock in situations where information asymmetries are high. Considering that private companies in general are not required to report as much information and are not as much regulated as public companies, it can be argued that information asymmetries are higher in buying a private company than in buying a public company. Share payment would also help to keep the acquired firm's managers and key personnel, who are often shareholders, in the merged company.

According to Ghosh and Ruland (1998) stock payment is also the preferred payment method by target managers, because it will help to retain their jobs in the merged company. They show that target firms' management ownership is more important factor in determining the method of payment than acquirer firms' management ownership.

Taken the tax effects to sellers from cash transactions into consideration as discussed in Chapter 2.4.1, it would be expected that target managers prefer stock in acquisitions of private companies, to avoid the immediate tax implications. On the other hand, considering that the owners of private companies often have most if not all of their wealth tied up in the company, it would be safe to assume that they want to reduce the risk of their portfolio and diversify their holdings. This would mean that the owners take at least part of their consideration in cash. Also, if the acquiring company, has a large managerial ownership, they will most likely

prefer cash payment to avoid dilution of their share holdings as described by Amihud, Lev and Travlos (1990).

It is difficult to say the aggregate result of these effects, but as previous studies of private targets (see e.g. Ang and Kohers, 2001) have reported higher numbers of cash transactions, I test the proportion of payment methods with the following hypothesis:

H 7: Cash payment is more common in acquisitions of private firms than public firms.

Private companies generally have more concentrated ownerships and thus the execution of takeover logistically may be a less burdenous task. A concentrated group of owners is more likely able to make decisions on a smaller time frame than a large, dispersed group of owners. The takeover process is more straightforward than with public companies, who are required to file registration statements with the SEC. Considering that acquiring a private company involves less bureaucracy than acquiring a public company, I hypothesize the following:

H 8: Time from announcement date to effective date is smaller in acquisitions of private companies.

4 Data and Methodology

This section presents the data and methodology used in this study. I include a detailed description of how the data was obtained and discuss different methodologies with their pros and cons that have been used in previous studies as well as present the reasoning for the choice of methodology in this study.

4.1 Data

The study period extends from 1.1.1986 to 31.12.2003 covering 18 years of transactions. The study period includes periods of both bull and bear markets, which limits the possible bias a momentary overall market development could have on results. This period was chosen, because it contains most of the available and usable data for this study. The data before 1986 was rather incomplete and unusable for the purposes of this paper. The sample data is collected entirely from the US markets, firstly because US data is the most accurate, most reliable and best available, but also because it enables better comparability to other studies since vast majority of the studies on M&A use data from US markets. The M&A data for the empirical part of this study is extracted from the SDC Mergers and Acquisitions database, which is generally considered to be the most comprehensive source of M&A data.

M&A data for the private target sample is extracted using the following criteria; target company is required to be private and the acquiring company public, which yields a total of 42328 transactions. For data availability and reliability purposes, I additionally require that the acquirer was traded on the New York Stock Exchange, New York Stock Exchange OTC-list or NASDAQ. This reduces the sample to 27542 acquisitions. Because the object was to examine the effects of major discretionary management decisions involving acquisitions, I require that the acquirer has no previous ownership and that it acquires 100% of the target's shares, which reduces the sample to 21479. Of these, 10216 transactions have deal value disclosed and over $100.000, which results in the final sample for private target transactions.

For comparison purposes, a sample of public target takeovers is also extracted. There are 26893 transactions where both target and acquirer were public companies. In 21053 of these the acquirer is traded on the New York Stock Exchange, New York Stock Exchange OTC-list or NASDAQ. To get a sample that would be a closer match with the private sample, I exclude

all tender offers, as there were virtually none in the private sample. This drops 1803 cases from the public sample and leaves 19250. Of the remaining sample, in 3496 cases the acquirer acquires 100% of the target's shares. Of these, in 2977 the deal value is disclosed and over $100.000, which results in the final sample for the public target transactions.

For the abnormal return calculations, share price data for the acquisition announcement window is extracted from Thomson ONE and checked for robustness with data from Datastream. Market index data is also extracted from Datastream. I use SEDOL codes and ticker symbols together with announcement dates obtained from the SDC M&A database to match transactions to acquirer share prices in Thomson ONE Banker. For robustness, I use SEDOL to also check whether Thomson gives the same acquirer company name as extracted from the SDC. The share price data is checked for reliability by comparing a sample to data obtained from Datastream and SDC (SDC reports acquirer share price data for some days, such as the day before the acquisition).

There are a few differences between the share price extracted from Thomson and the pre-announcement day share price reported in SDC. I manually check some of these differences and trace their origin to different adjustment for stock splits. SDC reports the actual share price as it was, whereas Thomson's data is adjusted for stock splits.

Reliable share price data is not available for the full sample, which reduces the cases used for the abnormal return calculations to 5262 for private targets and 1587 for public targets. The limited availability of data for target shareholders equity and acquirer's number of shares reduces the sample used for the regressions further; the number of cases used in each regression depends on the variables employed and is reported in their respective tables.

Overall, the sample size is quite large compared with previous studies, which should improve the reliability of the results. I also manually checked for and removed some clearly erroneous items from the data, which should improve the data reliability.

4.2 Methodology

The methodology is divided into two parts. Firstly, I compare the characteristics of acquisitions involving private and public target by comparing the distribution of certain variables such as acquisition premium, acquirer stock market and relatedness. I also utilise regression to determine if the effects persist when other variables are controlled for. Secondly, I examine the factors that affect the acquisition premium for private targets and further examine if these factors have an effect on the acquirer shareholder returns.

There are several different ways to measure shareholder returns from acquisitions. I will briefly discuss the most used methods, their relative advantages and disadvantages, and provide reasoning for the method of choice in this study.

Methods to assess shareholder gains from a transaction can be roughly divided into two branches: market reaction and operating performance studies. Market reaction studies such as Bradley, Desai and Kim (1988), Sirower (1997) and Moeller, Schlingemann and Stultz (2004) generally utilize event study methodology to examine the effects of an acquisition announcement. These are mostly short-term event studies that measure shareholder gains by calculating cumulative abnormal returns over a few days event window. Longer-term studies examine post-merger (up to several years) share price performance relative to industry peers. Market-based methods and measuring cumulative abnormal returns are further discussed in section 4.2.1 as it is also the focus for the methodology of this study.

Operating performance studies attempt to identify sources of gains in mergers and to examine whether they are eventually realized as operating cash flows of the company. If there is value created in mergers, it should eventually show up in the firms' cash flows. These studies typically examine accounting measures such as return on assets and operating margins.

One of the most influential studies on operating performance is Healy, Palepu and Ruback (1992). They study post merger operating performance of 50 largest mergers during 1979-1984 and find a strong positive relation between increases in operating cash flows after the merger and abnormal returns at the merger announcement. This supports the view that announcement day effects are a good measure of long-term gains.

Advantages for the operating performance studies are that they capture the real gain to shareholders instead of expected gain as in market reaction studies, they also measure gains from a longer period and can be expected to capture the full effect of the event. The downside for operating performance studies is that the measures generally examined are not fully related only to the acquisition event itself, but instead they are results of the company's combined actions during the observation period, the variables thus contain a significant amount of noise compared with short-term market return event studies. The event itself cannot be isolated from the data. The accounting data can also be manipulated to show a desirable result easier than stock market data, so there is the question of data validity (see for example Benston (1985) and Baucus, Golec and Cooper (1993) for discussion).

4.2.1 Market-based methods

Market-based performance studies on M&A deals can be divided into short-term and long-term studies. Short-term studies typically employ event windows of a few days up to a couple of months. Event study windows have shortened during the decades as new studies have shown that a short event window provides a good approximate of long-term performance. A typical event window in the 1980s was 10 days (see Bradley, Desai and Kim, 1988; Asquith, Bruner and Mullins, 1983), in the 1990s and after it was only a couple of days (see Andrade, Mitchell and Stafford ,2001; Amihud, Lev and Travlos, 1990). The general opinion nowadays is that a window of a couple of days is sufficient to capture the majority of the effects. A longer event window will introduce more noise into the sample as the possibility for share price effects other than those caused by the announcement increase.

Some studies (see Fama (1998), Mitchell and Stafford (2000), Brav (2000)) also document that long-term event studies have several methodological concerns. The basic problem is that long-term studies are joint tests of market efficiency and model of market equilibrium. The model of expected returns for short-term event studies is not important as the expected return over a few days is close to zero using any model. However, with longer periods, the used model gets increasingly important. Long-term expected returns can vary significantly making it difficult to measure long-term abnormal returns.

Franks, Harris and Titman (1991) study exclusively post-merger performance employing an eight-portfolio benchmark that was designed to eliminate biases that are known to exist in

traditional benchmarks. They also employed several measures to control for the possible biases existent in traditional long-term performance studies. They calculate the results using different benchmarks and conclude that the benchmark selection in long-term studies significantly affects the results, which suggests that previous studies that found abnormal performance, may be biased. Using the eight-portfolio benchmark they found no statistically significant abnormal performance for acquirers, which suggests that announcement day market reactions are good estimates of long-term performance.

Andrade, Mitchell and Stafford (2001) argue that the most statistically reliable evidence on whether mergers create value for shareholders come from traditional short-window event studies, where the average abnormal stock market reaction at merger announcement is used as a gauge of value creation or destruction. The event study methodology measuring short-term cumulative abnormal returns has been found powerful on a wide variety conditions and it is also relatively straightforward to use (see for example Fama et al., 1969; Brown and Warner, 1985).

4.2.2 Measuring cumulative abnormal returns

Brown and Warner (1985) examine properties of daily stock returns and the effect on different event study methodologies for analysing share price effects of firm specific events. They examine several issues such as non-normality of daily returns, bias in OLS estimates of market model method and variance estimation in tests concerning the mean excess return. They find that non-normality does not have significant impact and that the characteristics of daily returns generally do not present difficulties for event study methodologies. The results indicate a striking similarity between the empirical power of the event study methodologies and the theoretical power implied by few simple assumptions. They also find the results very much similar with market model and market adjusted model, which both outperform the simpler mean adjusted return model. The market adjusted method has the advantage of not having parameter biases from estimating β and α, such as the market model has to deal with. The market adjusted method can be thought of an approximation of the market model method, where the estimates $\alpha_i = 0$ and $\beta_i = 0$ for all companies. Since generally α_i is small and the average β_i for all companies is 1, this usually produces acceptable results.

I use the market adjusted model to measure the market reaction to a takeover announcement using daily stock returns to calculate abnormal returns.

Daily abnormal returns are estimated for each stock using the following equation:

$$AR_{i,t} = R_{i,t} - R_{m,t} \quad (4)$$

where

t = day measured relative to an event

$AR_{i,t}$ = abnormal return on stock i on day t

$R_{i,t}$ = actual return on stock i during day t

$R_{m,t}$ = return on market benchmark during day t

Daily returns $R_{i,t}$ are calculated as follows:

$$R_{i,t} = (P_t - P_{t-1} + Div) / P_{t-1} \quad (5)$$

Where P_t is the share price for company on day t and Div is the possible dividend. The cumulative abnormal return for company i over the event period is calculated as follows:

$$\mathrm{CAR}_{i,T1,T2} = \sum_{t=T1}^{T2} \mathrm{AR}_{i,t} \quad (6)$$

Where T1 and T2 are the beginning and the ending days of the event period. For the whole sample, the returns are calculated as follows:

$$\mathrm{CAR}_{T1,T2} = \sum_{t=T1}^{T2} \mathrm{AR}_{t} \quad (7)$$

where

$$AR_t = \frac{1}{N_t} \sum_{i=1}^{N_t} AR_{i,t} \quad (8)$$

where N_t is the number of firms with abnormal return data during day t.

4.2.3 *Estimating acquisition premium for private targets*

Because of the absence of market values typically used to measure the premiums for publicly traded targets, the choice of a premium variable is limited for private targets. Taking into account the availability of data for private companies, the best available premium measure for this data set is the offer price-to-book value of equity ratio or, generally, the market-to-book ratio.

Fama and French (1992) examine the predictive power of the book-to-market ratio and report that it provides a simple and powerful characterization of the cross-section of average stock returns. The book-to-market ratio has since then been widely used in the finance literature for example by Ikenberry et al. (1995), who find that the book-to-market ratios are associated with long-run performance of firms announcing share repurchases, and Rau and Vermaelen (1998), who use the book-to-market to explain long-run returns to bidders.

A possible bias in using book-to-market ratio exists in the potential systematic understatement of the value of equity in private firms. A family run private firm may want to understate the book value of equity in order to minimize estate taxes. If the book value of equity for private firms is systematically understated, then the offer price-to-book value of equity ratio for private firms would be upwardly biased. Ang and Kohers (2001) study this possibility by comparing the book value of equity to total assets ratios for private and public firms. If private firms understate their book value of equity, also the book value of equity to total assets ratio will be understated[6]. They find no significant differences between the ratios for private and public firms using a two-sided test and conclude that for their sample, the offering price-to-book value of equity ratio is not biased.

Ang and Kohers (2001) further perform a robustness check whether the different transaction sizes of the sample of private and public targets have an effect on the results. They analyse a subsample of public company acquisitions, where the transaction value falls within two standard deviations of the private sample mean transaction value and find the results similar to the full sample. I also use this robustness check in this study.

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[6] Ang and Kohers (2001) also give reasons to why private firms would not understate their total assets, making the book value of equity to total assets ratio seem normal, although the book value of equity would in fact be understated. They suggest that understating total assets would make the firm seem unstable or risky and make it harder for them to get credit. It would also lower the tax shield of depreciation.

4.3 Variables

The key variables used in the study are presented in Table 4. Of the entire sample of acquisitions of private firms, only one transaction was classified as being hostile, thus I will not include hostility variable in the study. Further, there were only two transactions where the number of bidders was more than one, thus multiple bidder variable is also excluded from the analysis.

Variables used for descriptive statistics in addition to the ones mentioned in Table 4 include total assets, net income, net sales, Enterprise Value, offering P/E, EBITDA (earnings before interest, taxes, depreciation and amortization) , EBIT (earnings before interest and taxes), ROE (return on equity) and ROA (return on assets).

An acquisition announcement is considered high-tech if both the acquiring and the target company operate in high-tech industries defined with two-digit SIC codes of 28, 35, 36, 38, 48, 73, 80, and 87. The classification of high-tech industries is provided in the SDC Mergers and Acquisitions Database and has been used earlier for example by Kohers and Kohers (2000) and Laamanen (2002).

Table 4 Description of the key variables used in the study

Variable	Description
Relatedness	Dummy variable, equals 1 if the two merging firms share the same primary three-digit SIC code, 0 otherwise.
Stock payment	Dummy variable, equals 1 if payment is made entirely in stock, 0 otherwise.
Cash payment	Dummy variable, equals 1 if payment is made entirely in cash or cash equivalents as defined in the SDC database, 0 otherwise.
High technology	Dummy variable, equals 1 if both acquirer and target are classified as high technology companies according to SDC classification. Industry codes that are regarded as high technology are presented in Table 25.
NYSE	Dummy variable, equals 1 if the acquirer is traded at NYSE or NYSE OTC list, 0 if the acquirer is traded at NASDAQ.
Crossborder	Dummy variable, equals 1 if the transaction is classified as cross border in the SDC databases.
Era	Dummy variable, equals 1 if the announcement is made during 1993-2003, 0 if it is made during 1986-1992.
Relative size	Relative size is defined as the transaction value divided by the acquirer market value measured one day before the acquisition.
Acquirer market value	Acquirer market value is calculated by multiplying the number of outstanding shares by the share price one day before the announcement of the acquisition. In regression models, the natural logarithm of the variable is used.
Transaction value	Transaction value is the price paid to the target shareholders. In regression models, the natural logarithm of the variable is used.
Offer price-to-book	Offer price-to-book is defined as the offer price divided by the book value of target's shareholders' equity. This is used to proxy the acquisition premium for private companies.
Acquisition period length	Acquisition period length is calculated as the difference (in days) between the effective date and the announcement date of the acquisition. In regression models, the natural logarithm of the variable is used.
Deal volume	Deal volume is the yearly number of announced acquisitions.
Private target	Dummy variable, equals 1 if the target is a private company, 0 otherwise.

5 Empirical Analysis

This section introduces the empirical results. The purpose of the analysis in this section is to determine if there are differences in the acquisition characteristics and shareholder returns in acquiring private and public companies. I begin with descriptive statistics and continue to further analyse differences in methods of payment and other acquisition characteristics. I will then examine the differences in acquirer cumulative abnormal returns and target offer price-to-book values which are used as a proxy for target premium.

5.1 Descriptive statistics

My sample includes 13193 M&A announcements during 1986-2003, which consists of 10216 private target takeover announcements and 2977 public target takeover announcements. The annual distribution of the announcements is presented in Table 5.

Table 5 Annual distribution of the sample M&A announcements during 1986-2003

This table reports the annual distribution of the sample M&A announcements. The sample is drawn from SDC Platinum databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company and traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. The total sample includes 10216 transactions involving a private target and 2977 transactions involving a public target. 'Number' reports the number of announcements in the sample during that year. 'Value' reports the value of announcements in millions during that year deflated to year 2000 dollars using GDP deflator.

	Private Targets		Public Targets		Total	
Year	number	value ($ million)	number	value ($ million)	number	value ($ million)
1986	165	18870	66	33612	231	52482
1987	152	10580	82	39875	234	50455
1988	121	11094	66	28421	187	39515
1989	157	7064	73	32356	230	39421
1990	166	5400	60	28110	226	33510
1991	243	7989	76	30150	319	38139
1992	377	11999	89	26085	466	38085
1993	583	18432	119	50390	702	68822
1994	747	35069	188	51831	935	86900
1995	698	24223	219	131257	917	155480
1996	935	43850	246	223272	1181	267122
1997	1333	78459	325	319737	1658	398195
1998	1333	75647	353	870482	1686	946129
1999	991	80225	311	687492	1302	767717
2000	880	121653	254	696613	1134	818267
2001	469	36380	203	237101	672	273482
2002	448	27622	111	98404	559	126026
2003	418	30505	136	159578	554	190083
Total	10216	645061	2977	3744769	13193	4389830

As can be seen from the table, the numbers of private target acquisitions have increased considerably in the 1990s. Although, the numbers of private target acquisitions are larger than public target acquisition, the dollar value is considerably larger for public targets. A significant decrease in both private and public transactions can be seen after year 2000 with aggregate dollar values falling to about one third of the year before.

Descriptive statistics for select items are reported in Table 6. Takeover size variables such as transaction value and enterprise value indicate that transaction dollar values for public targets are on average 20 fold to private targets. The mean (median) transaction value for private targets is 59.77 (16.00), whereas for public targets it is 1209.39 (138.20). Also the variance of transaction value is higher for public targets. Offering P/E seems to be somewhat equal for both private and public companies, the difference test for averages is statistically insignificant. The variance of offering P/E is considerably higher for private targets.

Table 6 Descriptive statistics for acquisitions of privately held targets and publicly held targets

This table presents comparative statistics for acquisitions of private and public companies. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. Panel C reports two sided two independent samples t-test for equality of means not assuming equal variances. Offering P/E is the offering price divided by the target's earnings per share, acquirer market value is measured one day prior to the announcement, time from announcement to completion is measured as effective date minus the announcement date as reported in SDC, I exclude cases where the announcement date is equal to the effective date to mitigate possible biases due to data reliability.

Panel A: Private targets				
	N	Mean	Median	Std. Dev.
Deal value ($ million)	10216	59.77	16.00	203.56
Enterprise Value ($ million)	247	161.15	54.20	442.58
Offering P/E	1151	110.47	17.30	2060.58
Acquisition pediod length (days)	6259	93.80	62.00	113.53
Offer price to book value	1349	18.62	4.30	80.24
Transaction value to acquirer market value	3769	0.63	0.04	26.99
Target to acquirer total assets	1326	0.45	0.08	4.08

Panel B: Public targets				
	N	Mean	Median	Std. Dev.
Deal value ($ million)	2977	1209.39	138.20	5667.32
Enterprise Value ($ million)	2712	2464.26	328.77	12342.06
Offering P/E	2204	61.20	21.40	456.35
Acquisition pediod length (days)	2977	161.55	143.00	97.27
Offer price-to-book value	2977	5.19	2.45	22.05
Transaction value to acquirer market value	1257	0.51	0.12	5.84
Target to acquirer total assets	2463	0.55	0.15	4.32

Panel C: Differences of means			
	Mean Difference	Sig.	
Deal value ($ million)	-1149.62	0.000	***
Enterprise Value ($ million)	-2303.10	0.000	***
Offering P/E	49.27	0.423	
Acquisition pediod length (days)	-67.75	0.000	***
Offer price-to-book value	13.43	0.000	***
Transaction value to acquirer market value	0.12	0.796	
Target to acquirer total assets	-0.10	0.484	

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

Supporting hypothesis H 8, time from announcement to completion or acquisition period is significantly shorter for private targets than for public targets, a median value of 62 days compared with 143 days for public companies. The mean values were tested and found to be statistically significant at better than 0.01 level. I also tested the results for biases from method of payment. According to Wansley, Lane and Yang (1983) securities transactions may take twice as long to complete as their cash counterparts, which could introduce a

payment method bias in the results. Table 10 reports that public target M&A sample has a significantly higher proportion of stock deals than private target M&A sample and if indeed stock deals take longer to complete, this would of course affect the results.

The median acquisition period for public targets acquired with cash was 135 days, which is smaller than the acquisition period for the total sample (143 days), suggesting that method of payment has an effect on the length of the acquisition period. The same effect can be seen in private sample, the time to complete an acquisition is smaller for cash transactions. But does this explain the difference in the acquisition period length between private and public targets? The median acquisition period for private targets acquired with cash was 62 days, which is roughly half of the time needed to acquire a public firm with cash. It seems thus, that the method of payment does not explain the differences between the acquisition period lengths of private and public firms.

I also checked whether the results are dependent on firm size effect and analysed the acquisition period length in categories divided to deciles of acquiring firm market value. The results were not significantly different between the different categories. To further examine the different factors that affect the acquisition period length and whether the target public status remains as an explaining factor after controlling for various other variables I use regression modelling in Table 8 later in this chapter.

Contrary to H 5, the median offer price-to-book value ratio, which proxies the premium paid, is significantly higher for private targets (4.30) than for public targets (2.45), suggesting that owners of private firms receive a higher premium from selling their company than do owners of public firms. The difference is significant at better than 0.01 level. Examining the public target premiums on a smaller sample where the acquisition size is limited to two standard deviations away from the private target mean transaction size did not significantly change the results, suggesting that the differences in premiums is not an effect of different average transaction size between private and public targets. I will further analyse the factors that affect the offer price-to-book value ratio with regression modelling in Table 22.

The relative size variables do not seem to be significantly different between acquisitions of private and public companies. It may be that the t-test does not capture the small differences. I will further examine this result with a non-parametric test later in this chapter.

5.2 Target and acquirer characteristics

Key financial figures for targets and acquirers are presented in Table 7.

Table 7 Descriptive statistics for target and acquirer key financials

This table presents key financial performance figures for targets and acquirers in acquisitions of private and public companies. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. Target growth figures are calculated from last twelve months figures compared with two years prior financial statement data, except EBIT growth, which is a 3-year figure obtained directly from SDC.

Panel A: Private targets							
		N	Mean	Median	Minimum	Maximum	Std. Dev.
Total assets ($ million)	Acquirer	5377	3125.06	342.00	0.00	394142.00	14434.13
	Target	2119	107.26	20.20	0.00	6700.00	386.80
Net income ($ million)	Acquirer	5219	90.54	9.20	-14997.00	32445.40	746.38
	Target	1705	2.16	0.50	-526.00	3000.00	78.78
Net sales ($ million)	Acquirer	5352	1343.02	156.35	0.01	192195.00	6646.10
	Target	2791	158.99	14.00	0.00	283000.00	5360.67
EBIT ($ million)	Acquirer	4211	175.70	19.32	-1716.10	12447.00	800.69
	Target	1519	3.10	0.84	-208.32	1035.22	35.62
ROE (%)	Acquirer	3242	16.71	12.59	0.02	4000.00	76.55
	Target	960	171.61	20.57	0.01	65700.00	2454.13
ROA (%)	Acquirer	3949	13.87	5.12	0.02	13000.00	236.70
	Target	1594	-21.64	1.33	-2179.00	1182.70	150.31
Target 3yr EBIT growth (%)		410	40.45	17.35	-99.70	1136.93	106.27
Target EBITDA growth (%)		672	102.79	19.71	-98.92	25640.60	1032.25
Target sales growth (%)		1144	775.67	12.16	-96.70	689900.00	20533.78
Target R&D growth (%)		50	46.75	25.08	-75.00	500.00	90.91

Panel B: Public targets							
		N	Mean	Median	Minimum	Maximum	Std. Dev.
Total assets ($ million)	Acquirer	2465	14083.21	2062.00	1.70	1057657.00	45576.56
	Target	2976	2177.96	233.35	0.20	330414.00	13127.07
Net income ($ million)	Acquirer	2407	313.94	47.10	-15204.50	32488.00	1259.78
	Target	2941	30.12	3.30	-1269.30	3661.00	201.98
Net sales ($ million)	Acquirer	2381	3731.36	628.60	0.10	326625.00	11290.09
	Target	2925	632.07	70.90	0.10	62995.00	2706.43
EBIT ($ million)	Acquirer	1402	699.75	88.87	-15269.70	23518.00	2022.65
	Target	2883	71.35	5.76	-1145.70	16366.00	465.18
ROE (%)	Acquirer	1183	15.91	14.00	0.00	797.00	24.96
	Target	2205	17.28	11.46	0.02	6263.50	136.26
ROA (%)	Acquirer	2062	5.63	2.00	0.00	867.00	28.53
	Target	2940	-4.33	1.07	-551.20	155.35	31.28
Target 3yr EBIT growth (%)		1942	33.98	17.56	-92.70	3157.13	106.19
Target EBITDA growth (%)		2013	80.41	19.29	-98.70	36058.75	847.82
Target sales growth (%)		2861	174.94	12.05	-96.74	352627.27	6599.45
Target R&D growth (%)		267	35.30	11.96	-74.19	2600.00	171.13

Public sample acquirers and targets are much larger in terms of total assets, net income, net sales and EBIT (earnings before interest and taxes) compared to private sample firms. Three-year EBIT growth, EBITDA growth and sales growth figures, however, are very similar for both private and public targets, medians being almost exactly equal. Averages and standard deviations for these growth figures are higher for private targets, which tells that there are relatively more companies with very high growth figures in the private sample.

I include target R&D growth figures as a curiosity, however the comparison is somewhat limited because of limited data availability especially for private target R&D figures, which has only 50 observations. The data shows that private companies have grown their R&D expenditures relatively faster (median 25.08% versus 11.96%), which is expected for firms earlier in their development stage. Based on return on equity (ROE), acquirers of private and public companies seem to be equally profitable, mean (median) values being 16.71% (12.59%) and 15.91% (14.00%) respectively. However, if we look at return on assets (ROA), mean (median) values for acquirers of private targets are substantially larger at 13.87% (5.12%) compared to values for acquirers of public targets, which stand at 5.63% (2.00%). This may suggest that acquirers of private companies are better able to generate returns from their assets, setting aside financing decisions that affect ROE. However, it also may be the result of acquirers of private companies having a lighter balance sheet (or balance sheet that consists largely of intangible assets such as brand names, patents, etc.), such as high technology companies may have, which would overstate ROA figures. For target companies, the mean and median ROE is much larger for private sample than for public sample. I also examined the ROA and ROE figures for a subsample of public companies with limited transaction size to two standard deviations from the private sample mean to see if transaction size has an effect on the results. The results of the subsample did not change significantly.

5.3 Acquisition characteristics

Table 8 presents the regression model for (the natural logarithm of) the acquisition period length. Multicollinearity statistics are also calculated and are well within accepted limits. The model has a statistically significant F-value and a relatively high explanatory power with adjusted R^2 0.239 in both specifications. For robustness, I tested several specifications, but did not find significant differences to the ones presented here.

The private target dummy for acquisition period is strongly negative and highly significant at better than 0.01 level providing strong support for earlier findings that acquisitions of private firms are completed faster and thus confirming H 8. One of the reasons that private firms are acquired faster may be because the ownership is more concentrated and decisions can be made on a smaller timeframe, without the need to organize a shareholders meeting for a large group of owners. Selling a private firm also requires less bureaucracy.

High technology companies have shorter acquisition period lengths, which is expected due to the fast paced nature of the business. An acquisition is likely to be well prepared, since the effects of it not getting completed can be severe (Alanen, 2001). Relative size expectedly has a positive coefficient. As the target size gets larger compared to the acquirer size, the relative importance and the possible effects to the acquirer get larger and therefore it is expected that also the due diligence process is longer.

Table 8 Regression model for acquisition period length

This table presents the regression model for acquisition period length in acquisitions of private and public companies. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. Table reports standardized betas, significance, F-value and significance of the model and adjusted R^2. The dependent variable is the natural logarithm of the number of days from the announcement of an acquisition to effective date. Independent variables are defined in Table 4.

Dependent Variable: ln(acquisition period length)				
Specification	1		2	
	Beta	Sig.	Beta	Sig.
Constant	4.906	0.000 ***	4.953	0.000 ***
High technology dummy	-0.273	0.000 ***	-0.270	0.000 ***
Relative size	0.049	0.026 **		
Relatedness dummy	0.073	0.001 ***	0.068	0.002 ***
Stock payment dummy	0.064	0.017 **	0.078	0.005 ***
Cash payment dummy	-0.111	0.000 ***	-0.099	0.000 ***
Private target dummy	-0.331	0.000 ***	-0.330	0.000 ***
Offer price to book value	-0.039	0.088 *	-0.037	0.102
Acquirer market value			-0.072	0.013 **
Transaction value			0.057	0.057 *
Observations		1561		1561
F-value		71.042 ***		62.357 ***
Significance		0.000		0.000
Adjusted R^2		0.239		0.239

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

Relatedness dummy has surprisingly a positive coefficient. It would be expected that the acquisition process was shorter if the companies are already familiar with each others businesses. However, there may be more strategic buyers in related acquisitions as opposed to private equity groups, which may lengthen the acquisition period. Strategic buyers may need more time for the due diligence to estimate how well the company fits in their current business instead of simply being a financial investment.

Stock payment has a positive effect on the acquisition period as expected. The requirements for securities registration with SEC in stock offers make the process longer than cash transactions as documented by Wansley, Lane and Yang (1983). Although the possibility of shelf registration of securities has made issuing securities easier and lowered the acquisition period for stock offers, cash offers are still faster to complete. Offer price-to-book value, which is a proxy for the target premium, has a negative coefficient as expected. The larger the premium, the keener the target shareholders are on selling the company.

Transaction value (logarithm of) variable is positive and significant. Expectedly, as the value of the transaction grows, so does the time it takes to evaluate it. Acquirer market value has a negative and significant coefficient suggesting that larger acquirers complete deals faster. This is reasonable because larger companies are more likely to have more resources to put into the acquisition process.

Acquisitions compared by their relative size are reported in Table 9. The median figure for all the relative size variables is larger for the public target sample. Public targets are generally larger in relation to the acquirer than private targets. Median transaction value to acquirer market value for private and public targets are 0.04 and 0.12 respectively, meaning that generally acquirers are about 25 times larger than private targets and 8 times larger than public targets. The mean values and standard deviation are larger for private target sample, which suggests that private target transactions vary more in terms of relative size and that there are some targets that are substantially large compared to the acquirer. The non-parametric distribution test is highly significant for all variables.

Table 9 Comparison of relative size of acquisitions of privately held targets and publicly held targets

This table compares the relative sizes of acquisitions of private and public companies. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. Acquirer market value is measured one day prior to the announcement. Mann-Whitney U is used to test the significance of differences in relative size for the two samples.

Panel A: Descriptive statistics for relative size	N	Mean	Median	Std. Dev.
Transaction value to acquirer market value				
Private targets	3769	0.63	0.04	26.99
Public targets	1257	0.51	0.12	5.84
Target to acquirer total assets				
Private targets	1326	0.45	0.08	4.08
Public targets	2463	0.55	0.15	4.32
Target to acquirer net sales				
Private targets	1679	1.11	0.12	12.30
Public targets	2348	0.59	0.17	3.46

Panel B: Non-parametric distribution test for relative size	Mann-Whitney U	Z	Sig.
Transaction value to acquirer market value	1636324	-16.44	0.000 ***
Target to acquirer total assets	1232963	-12.47	0.000 ***
Target to acquirer net sales	1755803	-5.92	0.000 ***

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

Method of payment statistics are presented in Table 10. For acquisitions of privately held targets, cash offers are dominating in frequency with 52.6% of total number of offers compared with 28.0% for stock offers. For acquisitions of publicly held targets in turn, stock is the dominating payment method with 57.5% compared with 20.0% for cash offers. Both private and public deals have an almost equal share of mixed offers (some portion of stock and cash). Pearson's χ^2 test highly significant. The results support H 7 suggesting that the share of cash offers is higher in private target sample. The results are also in line with previous studies, such as Ang and Kohers (2001), who found that majority of the acquisitions of private firms were cash financed.

Table 10 Comparison of method of payment

This table presents method of payment statistics for acquisitions of private and public companies. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. The table reports absolute values as well as relative amounts of acquisitions that used cash only, stock only or both mixed as consideration. Pearson χ^2 test is used to test if the proportion of payment methods differs between private and public targets.

	Payment method							
Target public status	Cash		Stock		Mixed		Total	
Private	5374	52.6%	2861	28.0%	1981	19.4%	10216	100.0%
Public	596	20.0%	1711	57.5%	670	22.5%	2977	100.0%
Total	5970	45.3%	4572	34.7%	2651	20.1%	13193	100.0%
Pearson X^2	1129.66 ***							
Significance	0.000							

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

Could this be just a firm size effect? Grullon, Michaely and Swary (1997) report that the larger the relative size of the target compared to the acquirer, the more likely the merger is financed with stock or stock and cash mixtures, but not cash only. The relative size of the target to the acquirer in my sample is higher for public targets, as can be seen in Table 9, which may introduce a possible size bias to the results.

I extract a subsample of acquisitions of public companies where the relative size statistics are similar to those of the private target sample and see if the proportions of cash and stock offers are different from the full sample of public targets. The subsample does not significantly differ from the original sample by its proportions of payment methods. I also examine a subsample of public companies with transaction size limited to two standard deviations from the private sample mean and it yields the same results. It seems that the differing proportions of payment methods between acquisitions of private and public target are not only a firm size effect.

Regression analysis in Table 11 provides further analysis to the factors affecting method of payment. I control for several factors that may have an effect on the method of payment. The results support earlier findings. It shows the private target dummy highly significant and positive for cash payment and highly significant and negative for stock payment confirming the findings in Table 10 and providing further confirmation to H 7. Both of the models are statistically very significant with relatively good explanatory power.

The findings are interesting since they indicate that there are significant differences in payment methods for acquisitions of private and public companies, which are robust for various size effects. The results may mean that more of the owners of private companies want to cash out on the company or at least reallocate some of their wealth in the company. After all, private firms' owner managers usually have a significant portion of their wealth tied up in the company.

Table 11 Regression model for payment method

This table presents the regression model for method of payment in acquisitions of private and public companies. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. Table reports expected signs, betas, significance, χ^2-value and significance of the model and McFadden's pseudo R^2. The dependent variables are cash payment and stock payment dummies. Independent variables are defined in Table 4.

Dependent Variable:	Cash payment		Stock payment	
N=5014	Beta	Sig.	Beta	Sig.
Constant	-0.643	0.000 ***	-0.983	0.000 ***
NYSE dummy	1.129	0.000 ***	-1.116	0.000 ***
High technology dummy	-0.361	0.000 ***	0.294	0.000 ***
Relatedness dummy	-0.229	0.000 ***	0.216	0.001 ***
Private target dummy	1.335	0.000 ***	-1.264	0.000 ***
Transaction value	-0.340	0.000 ***	0.046	0.051 *
Acquirer market value	0.072	0.000 ***	0.173	0.000 ***
X^2		1043.1 ***		756.2 ***
Significance		0.000		0.000
McFadden's Pseudo R^2		0.150		0.118

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

The results are somewhat contrary to the hypothesis of Ghosh and Ruland (1998), who suggested that companies with high managerial ownership would prefer stock financing to preserve voting right and to increase the likelihood of retaining their jobs in the combined firm. It may be that the will to diversify their holdings outweighs the will to preserve voting rights, especially in the case where the acquiring firm is substantially larger than the target so that even an all stock offer would not result in a significant holding in the merged company.

Table 11 shows that several other factors also have a significant effect on the payment method. Acquirers listed in the NYSE seem to be associated with cash acquisitions over

stock. This may be due to NYSE listed companies being more stable and established and having more stable cash flow and stronger balance sheet and thus having more possibilities to make acquisitions with cash. Transaction value has a negative and significant coefficient for cash payment, suggesting that larger transactions are less likely to be financed entirely in cash. This is expected, since 100% cash financing for a large transaction can be difficult to arrange or the costs and risks associated with it may make it undesirable. Transaction value coefficient for stock payment is positive and significant, confirming the results.

For acquirer market value, it could be assumed that larger firms have more cash reserves and thus resources to make acquisitions in cash. On the other hand, smaller firms may have the incentive to use cash in acquisitions to keep their stock from diluting. Moeller et al. (2004) report that small firms are more likely to finance acquisitions with cash than equity. The results show that the acquirer market value has a positive and significant effect for both stock and cash payment suggesting that large acquirers use relatively more all equity and all cash offers and relatively less mixed offers. The results are confirmed with a regression of mixed payment dummy (not shown) with the same independent variables; acquirer market value has a negative, highly significant value.

Related acquisitions have a positive coefficient for stock payment and a negative coefficient for cash payment, both highly significant, which suggests that related acquisitions are more often stock offers. This is expected. Related acquisitions are more likely to be strategic acquisitions, where the acquirer seeks to buy a company that would fit into its strategy and be integrated into its operations and not so much something that would be sold off after a couple of years of reorganization. The acquirer would probably also want to tie the target key personnel into the merged company. In this perspective it would be consistent that related acquisitions are more likely paid in stock than cash.

High technology has a strong effect on the method of payment, the coefficient for stock payment is strongly positive and highly significant and strongly negative for cash payment. This is again as expected. There is a higher uncertainty associated with the valuation of high growth, high technology companies. By using stock as the method of payment the acquirer can effectively mitigate some of those uncertainties because the target shareholders will then share the possible post-merger share price effects. High technology companies are also more likely to have limited cash resources as especially the young high technology companies do

not usually generate positive cash flow. Stock payment also helps to tie key personnel to the company as they are often the most valuable asset in a high technology company.

I also test the proportions of crossborder transactions for both samples, the results are presented in Table 12. Because reliable information on crossborder private companies is likely harder to obtain than on public companies and the information asymmetries may be higher since the target is not on the same market, it would be expected that there are fewer crossborder deals in the private sample. However, proportions of crossborder deals are similar for both samples, which may mean that the market for private companies and information channels are functioning well enough even for companies that are not on the same market.

Table 12 Comparison of crossborder transactions

This table presents comparative statistics for crossborder acquisitions of private and public companies. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. The table reports absolute values as well as relative amounts of crossborder transactions. Pearson χ^2 statistic is also reported.

	Crossborder transactions					
Target public status	Yes		No		Total	
Private	292	2.9%	9924	97.1%	10216	100.0%
Public	90	3.0%	2887	97.0%	2977	100.0%
Total	382	2.9%	12811	97.1%	13193	100.0%
Pearson X^2	0.22					
Significance	0.637					

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

Comparison of the acquirer stock market in Table 13 reveals that 68.1% of sample companies that acquired a private target are traded at NASDAQ and only 31.9% are traded at NYSE. For public companies this relation is 49.2% at NASDAQ and 50.8% at NYSE. The difference in proportions is statistically significant. The result was tested for firm size effect using a smaller sample of public target transactions with the same deal size characteristics (deal value relative to the acquirer and absolute deal value were tested) as in the private sample. The results were found to be almost identical to the original sample, thus the difference is not due to the firm size effect. A higher proportion of high-technology acquisitions in the private sample could explain the larger proportion of NASDAQ acquirers. I will examine this effect in more detail with regression modelling while controlling for high-technology later in Table 16.

Table 13 Comparison of acquirer stock market

This table presents comparative statistics for acquirer stock market in acquisitions of private and public companies. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. The table reports absolute values as well as relative amounts of transactions. Pearson χ^2 statistic is also reported.

	Acquirer stock market					
Target public status	NYSE		NASDAQ		Total	
Private	3255	31.9%	6961	68.1%	10216	100.0%
Public	1513	50.8%	1464	49.2%	2977	100.0%
Total	4768	36.1%	8425	63.9%	13193	100.0%
Pearson X^2	359.11 ***					
Significance	0.000					

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

Comparison of transaction high-tech status in Table 14 shows that private target transactions are more often high-technology than public target deals (41.7% versus 30.9%). The result is statistically significant. A transaction is considered high-tech if both acquirer and target have their primary SIC code in the list of high technology industries as defined by the SDC and as reported in Table 25. I will further use multinomial regression later in the chapter to examine if the results are due to the higher number of NASDAQ listed acquirers.

Table 14 Comparison of transaction high-tech status

This table presents comparative statistics for high technology dummy in acquisitions of private and public companies. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. The table reports absolute values as well as relative amounts of transactions. Transaction is considered high-tech if both target and acquirer have a high-tech industry code as defined by SDC. Pearson χ^2 statistic is also reported.

	High-tech transaction					
Target public status	Yes		No		Total	
Private	4262	41.7%	5954	58.3%	10216	100.0%
Public	921	30.9%	2056	69.1%	2977	100.0%
Total	5183	39.3%	8010	60.7%	13193	100.0%
Pearson X^2	112.35 ***					
Significance	0.000					

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

Table 15 presents target and acquirer relatedness proxied by matching 3-digit SIC codes. The results show that acquisitions involving a public target are more often related than acquisitions involving a private target. 56.5% of public targets were related to the acquirer industry, whereas only 45.0% of private targets were related to the acquirer industry. The results are statistically significant.

Table 15 Comparison of target and acquirer industry relatedness

This table presents comparative statistics for target and acquirer industry relatedness. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. The table reports absolute numbers as well as relative amounts of transactions. Target and acquirer are considered related if their primary 3-digit SIC codes match. I also tested 2-digit and 4-digit SIC codes and they produced similar results. Pearson χ^2 statistic is also reported.

	Target and acquirer related					
Target public status	Yes		No		Total	
Private	4597	45.0%	5619	55.0%	10216	100.0%
Public	1682	56.5%	1295	43.5%	2977	100.0%
Total	6279	47.6%	6914	52.4%	13193	100.0%
Pearson X^2	122.27 ***					
Significance	0.000					

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

For robustness, I use multinomial logistic regression to see if private target dummy has an effect on acquirer stock market, high technology and relatedness dummies while controlling for several other variables that might have an effect on the results. The regression models are shown in Table 16. All of the models have a statistically significant χ^2-value and all of them have the private target dummy statistically highly significant and of the expected sign, which confirm the results presented earlier.

Transaction value and acquirer market value are expectedly larger with NYSE acquirers. Also, there are less high-technology transactions as expected. An interesting finding is that NYSE acquirers seem to acquire less related businesses than NASDAQ acquirers, this even after controlling for high technology. Cash payment is more common with NYSE acquirers. As described earlier, NYSE firms are generally more stable and established blue chip companies, whereas NASDAQ is concentrated on high technology and high growth companies, which are probably less likely to have a positive and constant cash flow. Private

target dummy has a negative and highly significant coefficient confirming that acquirers of private targets are more likely traded at NASDAQ.

Positive and significant coefficient for private target dummy in the high technology regression confirms the earlier results that acquisitions of private targets are more often high technology than acquisitions of public targets. High tech acquisitions are significantly less likely to be performed with cash, which is consistent with earlier studies. Acquisitions of private targets are also less likely to be related.

Table 16 Regression models for acquirer stock market, high technology and relatedness

This table presents the regression model for acquirer stock market, high technology and relatedness in acquisitions of private and public companies. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. Table reports expected signs, betas, significance, χ^2-value and significance of the model and McFadden's pseudo R^2. The dependent variables are NYSE dummy, high technology dummy and relatedness dummy. Independent variables are defined in Table 4.

Dependent Variable:	NYSE dummy		High tech dummy		Relatedness dummy	
N=5015	Beta	Sig.	Beta	Sig.	Beta	Sig.
Constant	-3.101	0.000 ***	-1.887	0.000 ***	0.034	0.805
High technology dummy	-1.577	0.000 ***			0.715	0.000 ***
Relatedness dummy	-0.377	0.000 ***	0.704	0.000 ***		
Private target dummy	-0.196	0.036 **	0.717	0.000 ***	-0.440	0.000 ***
Transaction value	0.284	0.000 ***	-0.082	0.001 ***	0.117	0.000 ***
Acquirer market value	0.340	0.000 ***	0.256	0.000 ***	-0.051	0.004 ***
Cash payment dummy	0.824	0.000 ***	-0.285	0.001 ***	-0.191	0.018 **
Stock payment dummy	-0.626	0.000 ***	0.111	0.211	0.076	0.362
NYSE dummy			-1.475	0.000 ***	-0.406	0.000 ***
X^2		1628.6 ***		919.2 ***		365.1 ***
Significance		0.000		0.000		0.000
McFadden Pseudo R^2		0.240		0.133		0.053

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

5.4 Acquirer shareholder gains

Daily market-adjusted abnormal returns to acquirers around the acquisition announcement day are presented in Table 17. Abnormal returns in private target transactions are significantly positive and in turn significantly negative for acquisitions involving a public target, thus supporting hypotheses H 1, H 2 and H 3. The [-1,+1] window captures most of the abnormal returns, though there are some small statistically significant returns 3 days before the

announcement and 3 days after for the private sample. Private target acquirers experience an abnormal return of 1% on the announcement day and further 0.5% the day after. Public target acquirers experience an abnormal return of -1% on the announcement day and further -0.5% the day after. The effects are surprisingly symmetric, only with opposite signs.

Table 17 Daily average abnormal returns for acquirers of privately held targets and publicly held targets

This table presents the average abnormal returns for acquirers of privately and publicly held targets around the transaction announcement. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. The table reports average abnormal returns for acquirers of 5262 private companies and 1587 public companies. The event window extends 5 days before and 5 days after the announcement day (day 0).

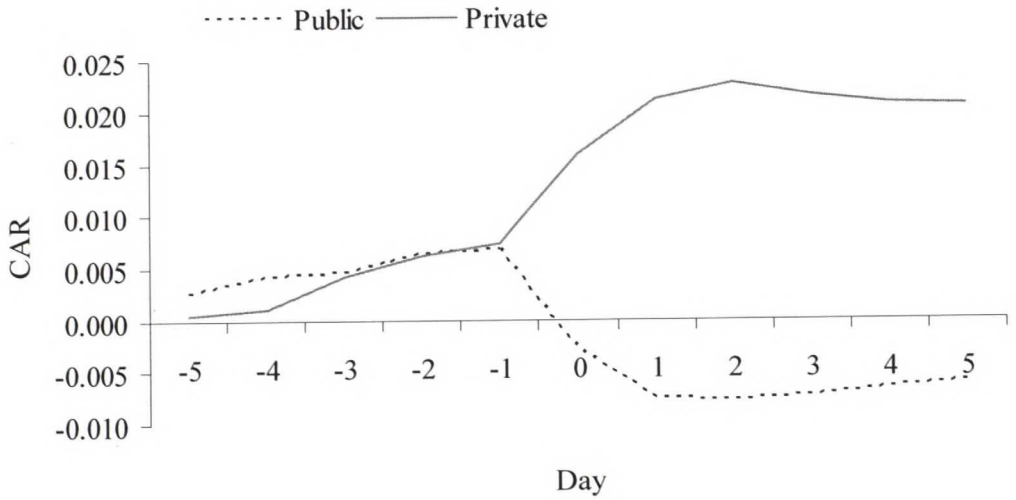
	Private target (n=5262)			Public target (n=1587)		
Day	Acquirer AR	Sig.	t-stat	Acquirer AR	Sig.	t-stat
-5	0.001	0.303	1.030	0.003	0.004	2.861 ***
-4	0.001	0.302	1.033	0.002	0.067	1.833 *
-3	0.003	0.000	5.037 ***	0.000	0.613	0.505
-2	0.002	0.001	3.259 ***	0.002	0.036	2.100 **
-1	0.001	0.055	1.919 *	0.000	0.660	0.440
0	0.009	0.000	10.112 ***	-0.010	0.000	-7.765 ***
1	0.005	0.000	6.753 ***	-0.005	0.000	-4.170 ***
2	0.002	0.012	2.511 **	0.000	0.912	-0.111
3	-0.001	0.053	-1.939 *	0.000	0.716	0.364
4	-0.001	0.185	-1.325	0.001	0.311	1.014
5	0.000	0.654	-0.449	0.000	0.499	0.676

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

Cumulative abnormal returns to acquirers are presented graphically in Figure 1. The effect can be seen quite clearly; acquirers of private targets have a significant positive share price reaction and acquirers of public target have a significant negative share price reaction. Both private and public target acquirers experience a small positive runup towards the announcement day. After day 1 there is a small drift.

Figure 1 Cumulative abnormal returns to acquirers of private and public companies

This figure presents the market adjusted cumulative abnormal returns for acquirers of private and public targets in a [-5,+5] window. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. The sample used in CAR calculation includes 1587 public target and 5262 private target acquisitions.



To further analyse the announcement day effect, I divide the cumulative abnormal returns according to method of payment used in the acquisition, results are shown in Table 18. Hypothesis H 4 predicted that gains to acquirer shareholders from acquiring a private target are larger in stock offers than cash offers. Acquirers of private targets and acquirers of public targets both experience a statistically significant positive effect in cash offers, 1.05% and 0.78% respectively. Both samples have around 55% of the observed CARs positive for cash offers. In stock offers, acquirers of private targets experience a statistically significant positive effect of 2.00%, 55.66% of the observations are positive, whereas acquirers of public targets experience a statistically significant negative effect of -2.17% and only 37.43% of the observations are positive. The difference in abnormal returns found in Table 17 is almost entirely accounted for by the difference in abnormal returns of stock offers. The difference between mean CARs is significant at the 0.01 level. Supportive evidence for H 4 was found, returns from acquiring a private target are larger in stock offers than in cash offers.

Table 18 Cumulative abnormal returns to acquirers by payment method

This table presents the cumulative abnormal returns for acquirers of private and public targets by payment method. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. Cumulative abnormal return is measured on a three day [-1,+1] window. Stock offers are 100% stock, cash offers are 100% cash or cash equivalents. One sample t-test is used to test if the average CAR differs significantly from zero. Wilcoxon signed-rank test is used for the percent positive. Significance tests are two-tailed.

Panel A: Private targets	N	Average (median) acquirer CAR	t-stat	Sig.	Percent positive	Sig
Cash offers	2890	1.05% (0.46%)	7.26	0.000 ***	54.67%	0.000 ***
Stock offers	1378	2.00% (0.64%)	6.40	0.000 ***	55.66%	0.000 ***

Panel B: Public targets	N	Average (median) acquirer CAR	t-stat	Sig.	Percent positive	Sig
Cash offers	336	0.78% (0.50%)	2.50	0.013 **	55.95%	0.037 **
Stock offers	855	-2.17% -(1.40%)	-8.19	0.000 ***	37.43%	0.000 ***

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

In Table 19, I examine the firm size effects on acquirer CAR. The sample size is somewhat smaller than in Table 18 because of data requirements for the acquirer market value used to measure the acquiring firm size. I define acquiring firm size as small if its market value is below the 25th percentile of the sample companies, large firms are defined to have a market value above the 75th percentile of the sample companies. Results show that on average small acquirers experience higher CAR than large acquirers for all payment methods. This is found in both private and public target samples, although the differences in the public target sample are not as significant. The highest difference can be found in mixed offers, where small acquirers seem to gain on average 2.99% and 3.82% more for private and public targets respectively. All the return differences in the private target sample are significant and positive. The negative difference (-0.92%) for stock offers in public target sample is insignificant. An interesting finding is that in mixed offers, acquiring a public company yields negative returns (-2.55%) for large acquirers, but positive returns (1.26%) for small acquirers. The difference (3.82%) is statistically significant at the 0.10 level. According to these results the acquiring firm size does not seem to fully explain the difference between the acquirer CARs in private and public targets.

Table 19 Cumulative abnormal returns to acquirers by payment method and acquirer size

This table presents the cumulative abnormal returns for acquirers of private and public targets by payment method. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. Cumulative abnormal return is measured on a three day [-1,+1] window. Stock offers are 100% stock, cash offers are 100% cash or cash equivalents. Small firm is defined as having a market value below the 25th percentile in the sample, respectively large firms are defined as having a market value above the 75th percentile. Market values are measured one day prior to the announcement. Diff is the difference in means of CARs of small and large acquirers. Two independent samples t-test is used for the difference between small and large firm CAR. Significance tests are two-tailed.

Panel A: Private targets		Acquiring firm size				
	N	Small	Large	All	Diff	Sig.
Cash offers	1035	1.74%	0.67%	0.88%	1.06%	0.046 **
Stock offers	408	3.83%	1.30%	1.77%	2.53%	0.048 **
Mixed	328	3.62%	0.63%	2.48%	2.99%	0.029 **
All	1771	2.62%	0.91%	1.40%	1.71%	0.001 ***

Panel B: Public targets		Acquiring firm size				
	N	Small	Large	All	Diff	Sig.
Cash offers	91	2.51%	0.24%	0.59%	2.27%	0.026 **
Stock offers	224	-3.02%	-2.10%	-2.65%	-0.92%	0.455
Mixed	131	1.26%	-2.55%	-1.79%	3.82%	0.099 *
All	446	-0.73%	-1.75%	-1.78%	1.03%	0.270

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

To examine the factors that affect the acquirer cumulative abnormal returns in more detail I use linear regression with acquirer CAR as dependent variable. The results are in Table 20. I include control variables for stock exchange, high technology, payment method and acquirer as well as transaction size, as they may have an effect on the acquirer CAR. The explanatory variables have been suggested by the theory as factors in how markets perceive the acquisition. The relative size of the transaction basically proxies how large the potential effect on acquirer share price would be. The larger the relative size of the target, the larger the impact on the acquirer and thus more likely there will be a larger impact on the acquirer share price.

The private target and public target samples are presented separately in Panels A and B to get a more detailed picture of the effects different factors have on the acquirer CAR in acquisitions of private targets versus public targets. In Panel A, the relatedness dummy has a negative and significant coefficient, indicating that acquiring a private company, which works in a related industry as defined by the three-digit SIC code, results in a lower return for the acquirer. This result is contrary to hypothesis H 6, which suggested that related acquisitions

would result in higher abnormal returns due to potentially larger synergies. Stock payment dummy is positive and significant providing further evidence to H 4 stating that acquirer CARs are higher in stock offers when acquiring private targets. This supports the blockholder monitoring hypothesis brought forward by Chang (1998). Acquirer market value has expectedly a negative coefficient indicating a smaller effect on CAR when the acquirer is larger and similarly transaction value has a positive coefficient, indicating a larger effect on CAR when the target is larger. For robustness I also check another specification with relative size and acquirer market value as the size variables, which does not change the results significantly. The model is highly significant with an explanatory factor of 0.074 in specification 1 and 0.063 in specification 2.

Panel B reports the regression model for public targets. High technology dummy is shown to have negative and significant coefficient in both specifications, which indicates that on average, high-tech acquisitions have generated lower returns to acquirers. This is consistent with higher premiums paid for high technology firms reported by Lev and Sougiannis (1996). Relatedness dummy is negative, but statistically insignificant, thus neither support nor more contrary evidence is found for H 6 in public sample. The results on industry relatedness in previous studies have also been inconsistent, which poses a question of whether the popular use of SIC code as a measure of relatedness is entirely accurate. But, lacking a better and more suitable solution, we must revert to using SIC. Stock payment dummy is expectedly negative and highly significant for public targets, thus supporting the overvaluation hypothesis that companies issue shares when they think their stock is overvalued and providing further confirmation to H 1. Transaction value has a negative coefficient suggesting that larger transactions result in larger losses, this has also been confirmed in for example Moeller et al. (2005). The model is highly significant and compared with other studies has a relatively good explanatory power with R^2 of 0.115 and 0.010 for specifications 1 and 2 respectively.

Table 20 Regression model for acquirer CAR in private, public and all targets

This table presents the regression model for acquirer cumulative abnormal returns in acquisitions of private and public companies. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers, transactions where the bidder acquires less than 100% of target shares, and transactions where the transaction value is less than 10% of the acquirer pre-announcement market value. The dependent variable is the acquirer three-day cumulative abnormal return measured using the market adjusted model. Independent variables are defined in Table 4.

Panel A: Private targets Dependent Variable: Acquirer CAR	Specification			
	1		2	
	Beta	Sig.	Beta	Sig.
Constant	0.142	0.000 ***	0.094	0.000 ***
NYSE dummy	0.017	0.707	0.032	0.470
High technology dummy	0.008	0.837	0.013	0.744
Relatedness dummy	-0.093	0.016 **	-0.079	0.040 **
Stock payment dummy	0.109	0.013 **	0.092	0.035 **
Mixed payment dummy	0.038	0.353	0.032	0.436
Acquisition period length	-0.057	0.148	-0.034	0.382
Acquirer market value	-0.517	0.000 ***	-0.142	0.001 ***
Transaction value	0.384	0.000 ***		
Relative size			0.162	0.000 ***
Observations		667		667
F-value		7.641 ***		6.571 ***
Significance		0.000		0.000
Adjusted R^2		0.074		0.063

Panel B: Public targets Dependent Variable: Acquirer CAR	Specification			
	1		2	
	Beta	Sig.	Beta	Sig.
Constant	0.022	0.578	0.047	0.249
NYSE dummy	0.044	0.374	0.034	0.500
High technology dummy	-0.098	0.024 **	-0.102	0.020 **
Relatedness dummy	-0.025	0.528	-0.030	0.456
Stock payment dummy	-0.228	0.000 ***	-0.237	0.000 ***
Mixed payment dummy	-0.087	0.166	-0.108	0.086 *
Acquisition period length	0.052	0.208	0.047	0.259
Acquirer market value	0.117	0.231	-0.253	0.000 ***
Transaction value	-0.381	0.000 ***		
Relative size			-0.102	0.017 **
Observations		563		563
F-value		10.100 ***		8.814 ***
Significance		0.000		0.000
Adjusted R^2		0.115		0.100

Table 20 continued

Panel C: All targets Dependent Variable: Acquirer CAR	Specification 1		2	
	Beta	Sig.	Beta	Sig.
Constant	0.064	0.006 ***	0.048	0.041 **
NYSE dummy	0.022	0.512	0.019	0.558
High technology dummy	-0.034	0.244	-0.035	0.234
Relatedness dummy	-0.066	0.017 **	-0.063	0.021 **
Stock payment dummy	-0.007	0.837	-0.012	0.749
Mixed payment dummy	0.030	0.365	0.026	0.424
Acquisition period length	-0.006	0.842	-0.004	0.889
Acquirer market value	-0.295	0.000 ***	-0.185	0.000 ***
Transaction value	0.097	0.159		
Relative size			0.084	0.003 ***
Private target dummy	0.196	0.000 ***	0.196	0.000 ***
Observations		1230		1230
F-value		17.587 ***		18.452 ***
Significance		0.000		0.000
Adjusted R^2		0.108		0.113

Finally, Panel C reports the results on the whole sample and includes the dummy variable for private targets. While controlling for transaction size, acquirer market value, relative size of the target and the acquirer, stock exchange, high technology, relatedness, payment method, acquisition period length, the private target dummy is strongly positive and highly significant indicating that the positive CAR for acquirers of private targets is not simply due to firm size effect or payment method bias. Thus, strong support for H 3 is found. Both specifications are highly significant with relatively good R^2 values of 0.108 and 0.113.

5.5 Target shareholder gains

Typically, market values are used to measure the premium paid to publicly traded targets. Because of the absence of market values with privately held targets, I must use an alternative measure. The offer price-to-book ratio or more generally market-to-book ratio is the best available measure for this purpose. Market-to-book ratio is widely used and its usefulness has been proven by for example Fama and French (1992). It is often used for measuring the premiums for private targets in the finance literature. The use of offer price-to-book ratio is discussed in more detail in chapter 4.2.3. Target premiums proxied by the offer price-to-book value ratio are presented by payment method in Table 21.

Table 21 Offer price-to-book value premium by payment method

This table presents the offer price-to-book premiums to targets by payment method and target public status. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. Stock offers are 100% stock, cash offers are 100% cash or cash equivalents. Independent samples t-test assuming unequal variances is used to test the difference of means. Significance tests are two-tailed.

Target premiums	Private targets		Public targets		Sig. of difference	
	N	median	N	median	t-stat	Sig.
Cash offers	470	3.80	596	1.94	4.315	0.000 ***
Stock offers	538	3.29	1711	2.51	4.186	0.000 ***
Mixed	341	5.84	670	2.87	3.409	0.001 ***
All	1349	4.30	2977	2.45	6.043	0.000 ***

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

The premiums are higher for private targets for all payment methods, thus providing contradictory evidence to H 5. The highest median offer price-to-book premium (5.84) can be observed with private targets receiving their payment in mixtures of stock and cash. Median offer price-to-book in the total sample for private and public targets is 4.30 and 2.45 respectively. It seems thus, that owners of private companies receive a larger premium for their shares, regardless of the method of payment. All differences are statistically significant at better than 0.01 level.

Regression model for target premium is presented in Table 22. The private target dummy has a positive and significant coefficient, suggesting that privately held companies receive a better premium, providing additional strong evidence against H 5. This result is specifically interesting, since as Table 20 showed, also the acquirers of private firms were better off compared to acquirers of public firms. Reasons for this may include the stronger bargaining power of private target shareholders because of more concentrated ownership as described by Ghosh and Ruland (1998) and the value of monitoring brought by a new outside blockholder as described by Chang (1998). The results do not support the existence of a liquidity discount for private companies reported by Koeplin, Sarin and Shapiro (2000) and Fuller et al. (2002). There is no evidence of underpayment to private companies, which would be the source of higher acquirer abnormal returns.

Table 22 Regression model for offer price-to-book value

This table presents the regression model for offer price-to-book value ratio, which is used to proxy the premium paid to target shareholders. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers as well as transactions where the bidder acquires less than 100% of target shares. Table reports standardized betas, significance, F-value and significance of the model and adjusted R^2. The dependent variable is the target premium proxied by offer price to book ratio, independent variables are defined in Table 4.

Dependent Variable:	Private targets		Public targets		All targets	
Offer price-to-book	Beta	Sig.	Beta	Sig.	Beta	Sig.
Constant	-8.547	0.837	-1.719	0.697	0.818	0.949
NYSE dummy	0.053	0.403	-0.103	0.001 ***	-0.018	0.545
High technology dummy	0.124	0.042 **	0.148	0.000 ***	0.084	0.002 ***
Relatedness dummy	-0.050	0.375	0.037	0.181	-0.011	0.646
Acquisition period length	-0.054	0.386	-0.055	0.056 *	-0.046	0.103
Stock payment dummy	-0.021	0.776	0.039	0.244	-0.014	0.646
Cash payment dummy	-0.136	0.048 **	0.053	0.119	-0.056	0.071 *
Transaction value	0.102	0.164	0.208	0.000 ***	0.070	0.042 **
Acquirer market value	0.087	0.243	0.087	0.017 **	0.064	0.056 *
Private target dummy					0.192	0.000 ***
Observations		311		1250		1561
F-value		3.135 ***		17.690 ***		11.393 ***
Significance		0.002		0.000		0.000
Adjusted R^2		0.052		0.097		0.057

*** significant at the 0.01 level; ** significant at the 0.05 level; * significant at the 0.10 level

I will next go through the other statistically significant variables that have an effect on the offer price-to-book value. NYSE dummy has a statistically significant negative coefficient in public targets sample, suggesting that acquisitions performed by NASDAQ-traded acquirers pay higher premiums to targets. However, for private targets and the full sample, the coefficient is statistically insignificant. The beta for high technology dummy is positive and significant for all samples, which suggests that growth options embedded in high tech firms may be a source of higher premiums. Consistent with the excess premium hypothesis, acquirer CARs are smaller for high-tech acquisitions.

Cash payment dummy is significant and negative for private target sample, which supports the findings in Table 21 that highest premiums are associated with payments in mixtures of stock and cash. Acquirer and target industry relatedness does not seem to affect the offer price paid over the book value, thus no support is found for H 6. Acquisition period length is negative and significant for public targets indicating that shorter acquisition periods are

associated with higher premiums. This is expected, as the owners are more likely to be more eager to sell their company the more money they get. Acquirer market value and transaction value both seem to positively affect the offer price-to-book, indicating that larger acquirers pay higher premiums but interestingly also that larger targets receive higher premiums. For robustness, I ran the regression with only one size variable at a time (i.e. acquirer market value or transaction value) and they yielded the same results. I also ran the regressions with the relative size variable, but the coefficient was insignificant. The larger premium paid to larger targets is in line with the synergy hypothesis, since larger target is a potential source for more synergies. Large firms paying a higher premium is in line with the results of Moeller et al. (2004), who also report that large firms pay more and that acquisitions of large firms are generally associated with negative synergies.

The F-values of the models are statistically significant and tests for multicollinearity did not indicate a problem for any of the model variables. The R^2 value is higher in the public target sample, almost 0.10, and lower in the other two samples, but still fairly good compared with other similar studies. All the models were inspected for problems with multicollinearity by checking tolerance and VIF values, no signs of collinearity were found.

6 Summary and Discussion

This chapter presents the key findings on acquisition characteristics and shareholder gains in relation to the hypotheses formulated in this study.

This thesis examines the differences between acquisitions of privately held and publicly held companies. The area has not been thoroughly researched, as most of the research papers concentrate on acquisitions of public companies partly because of data availability reasons. The data on private firm takeovers has improved during the recent years as more and more data are collected and input to the database. The research adds to and complements the current literature by employing a fresh and large dataset over a period of 18 years. The paper also examines some of the separate findings of previous studies together to bring a broader view on private M&A market characteristics and behaviour.

Private firms have characteristics that may have implications on M&A that are different from public firm takeovers. Private firm shares are considerably less liquid than public firm shares, which may give rise to a liquidity discount. The liquidity discount is one possible source of positive abnormal gains to acquirer shareholders. Private firm ownership is more concentrated, which has an effect on the decision-making ability of the company and may result in better bargaining power and lower agency conflicts. Because private firms are generally owned by a small group of people, acquiring a private firm with stock may result in a blockholder in the merged company that can effectively serve as an outside monitor of managements' actions and facilitate takeovers. Further, since the target shareholders will be taking a significant holding in the acquiring company, they have the incentive to assess the acquiring company in great detail. Thus accepting the offer conveys positive information to the market whereas in general stock offers of public companies are associated with negative information about the acquirer valuation.

I examine the characteristics of the acquisitions in terms of payment method, length of acquisition period and relatedness among others. I also calculate abnormal returns to measure the acquirer shareholder gains. Target shareholder gains are proxied with the offer price-to-book ratio of the transaction.

The empirical analyses seem to indicate that there are several distinct differences between the acquisitions of private and public companies. I will review the findings together with the corresponding hypotheses in Table 23.

Table 23 Summary of findings

Hypothesis	Empirical findings
H 1: Gains to acquirer shareholders from acquiring a public company are on average negative	Statistically significant evidence found, the acquirers of public companies have a cumulative abnormal return of -1.5% over a three-day window. Cash offers have a positive CAR of 0.78% and stock offers have a negative CAR of -2.17%.
H 2: Gains to acquirer shareholders from acquiring a private company are on average positive	Statistically significant evidence found, the acquirers of private companies have a cumulative abnormal return of 1.5% over a three-day window.
H 3: Gains to acquirer shareholders are larger in acquiring a private company than in acquiring a public company	Statistically significant evidence found.
H 4: Gains to acquirer shareholders from acquiring a private company with stock are larger than gains when acquiring with cash.	Statistically significant evidence found. Cash offers have a positive CAR of 1.05% and stock offers have a positive CAR of 2.00%.
H 5: Premiums to targets, proxied by the offer price-to-book value ratio, are smaller for private companies than for public companies.	Statistically significant contradicting evidence is found. Median offer price-to-book value is 4.30 for private targets and 2.45 for public targets.
H 6: Gains to acquirer shareholders as well as target premiums are larger in related than in unrelated acquisitions	Some contradicting evidence is found, acquirer CAR for private targets seems to be negatively associated with relatedness. No statistically significant evidence for public targets or for target offer price-to-book values.
H 7: Cash payment is more common in acquisitions of private firms than public firms.	Statistically significant evidence found, 52.6% of private acquisitions were cash offers, whereas only 20.0% of public targets were acquired with cash.
H 8: Time from announcement date to effective date is smaller in acquisitions of private companies.	Statistically significant evidence found, median acquisition period is 62 days for private targets and 143 days for public targets.

Consistent with most studies on public M&A, I find negative gains to acquirers of public companies. Cash offers to public companies are found to have a positive three-day abnormal return and stock offers a negative abnormal return. Contrary to the negative returns to acquirers of public companies, I find significant positive returns to acquirers of private firms. The results are robust for various firm size and transaction size effects. An interesting finding is that also target shareholders seem to gain more if the target is a private company. That is,

unlike with the transactions of two public companies, both the acquirer and the target seem to gain significantly. Thus, I find no evidence of a liquidity discount for private targets.

The returns to acquirers of private companies are higher if the acquisition is stock financed, supporting the blockholder monitoring hypothesis. It is also in line with the fact that private firm shareholders have an incentive to carefully asses the acquiring firm before accepting the offer and that accepting the stock offer will convey positive information about the acquirer to the market. Despite this, the dominant payment method for acquiring private companies is cash and it remains dominant after controlling for firm size.

Because private targets seem to be able to capture a higher premium than public targets, measured by the offer price-to-book value, there is evidence that they have better bargaining power. This can be partly attributed to more concentrated ownership and fewer agency problems.

There are plenty of research avenues left in the private market side of the M&A literature as the existing number of research papers is far from the number of papers done on public M&A. The limited availability of data and the absence of market values limit the possible research topics to pursue. The data availability and comprehensiveness is, however, improving all the time.

Regarding this study, it would be interesting to further expand it by examine the differences of private and public firm acquisitions using matching pairs. By finding transactions where the pair of public target and public acquirer match as closely as possible to a pair of private target and public acquirer in terms of firm size, industry, announcement date etc., the differences between the two cases could be more precisely pointed out. It would also be interesting to see if companies are specialised in acquiring private or public companies. The results of this study could also be complemented with analysis of acquisition behaviour between different industries.

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Appendices

Appendix 1

Table 24 Cumulative abnormal returns by year

This table presents the acquirer cumulative abnormal returns sorted by year and payment method. The M&A data is drawn from Securities Data Corporation (SDC) databases and covers completed M&A announcements during 1.1.1986-31.12.2003. Acquiring company is required to be a public company traded on NYSE, NYSE OTC-list or NASDAQ. The sample excludes tender offers, transactions where the bidder acquires less than 100% of target shares. CAR is calculated using market-adjusted method using a three-day [-1,+1] window.

	Private targets				Public targets			
	Cash		Stock		Cash		Stock	
Year	N	CAR	N	CAR	N	CAR	N	CAR
1986	25	1.01%	9	0.19%	10	-1.29%	4	1.33%
1987	19	0.53%	24	-3.24%	2	1.15%	13	-2.36%
1988	18	-0.68%	6	1.62%	13	0.78%	10	0.94%
1989	21	-0.50%	9	0.17%	8	-0.04%	17	-2.09%
1990	24	-0.97%	16	2.54%	5	9.94%	8	-2.16%
1991	36	2.94%	21	2.98%	3	1.77%	17	-0.74%
1992	52	2.06%	49	3.40%	7	1.79%	17	1.85%
1993	89	1.71%	71	2.18%	9	1.20%	20	-1.66%
1994	152	1.60%	72	1.28%	11	1.87%	53	-0.64%
1995	128	0.83%	88	1.90%	10	-0.54%	56	-1.48%
1996	218	1.00%	138	2.74%	19	-0.60%	57	-0.96%
1997	355	1.86%	156	1.57%	20	1.69%	102	-0.93%
1998	457	0.53%	150	0.60%	27	1.03%	118	-2.54%
1999	312	0.69%	199	2.60%	35	0.25%	128	-2.46%
2000	252	1.20%	238	1.97%	43	0.91%	102	-5.17%
2001	210	1.87%	69	2.25%	41	0.56%	68	-2.43%
2002	254	0.56%	34	3.63%	35	1.59%	28	-3.45%
2003	268	0.60%	29	5.63%	38	-0.20%	37	-2.63%
1986-1992	195	1.04%	134	1.53%	48	1.39%	86	-0.58%
1993-2003	2695	1.05%	1244	2.05%	288	0.68%	769	-2.34%
2000-2003	984	1.02%	370	2.46%	157	0.70%	235	-3.77%
1986-2003	2890	1.05%	1378	2.00%	336	0.78%	855	-2.17%

Appendix 2

Table 25 Classification of high-technology industry codes

This classification is provided by the SDC Mergers and Acquisitions Database and has also been used in Laamanen (2002) and Kohers and Kohers (2000) earlier.

2-digit SIC code	Industry
28	Drugs and pharmaceuticals
35	Computer and office equipment
36	Electrical and electronic equipment
38	Measuring, medical and photo equipment
48	Telecommunications
73	Pre-packaged software
80	Health services
87	Business services

Appendix 3

Table 26 Correlation table

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. NYSE dummy	1	-.048**	-.010	-.273**	-.116**	.138**	-.106**	-.046**	-.100**	.115**	-.059**	-.019*	-.165**	-.079**	.341**	.316**
2. Offer price-to-book	-.048**	1	-.008	.129**	-.003	-.034*	.020	.011	.121**	-.110**	.039*	-.004	.128**	.026	.048**	.064*
3. Relative size	-.010	-.008	1	-.015	.016	.010	-.006	-.005	-.013	.010	.001	-.001	.002	.072**	-.015	-.101**
4. High technology dummy	-.273**	.129**	-.015	1	.175**	-.090**	.071**	.028**	.054**	-.253**	.080**	.070**	.092**	.022	-.037**	.076**
5. Relatedness dummy	-.116**	-.003	.016	.175**	1	-.120**	.115**	.012	-.107**	.088**	-.041**	.002	-.096**	-.026*	.085**	.022
6. Cash payment dummy	.138**	-.034*	.010	-.090**	-.120**	1	-.662**	-.456**	.156**	-.184**	-.008	.005	.274**	.021	-.237**	-.082**
7. Stock payment dummy	-.106**	.020	-.006	.071**	.115**	-.662**	1	-.365**	-.153**	.187**	-.025**	-.028**	-.259**	-.032**	.185**	.178**
8. Mixed payment dummy	-.046**	.011	-.005	.028**	.012	-.456**	-.365**	1	-.011	-.009	.040**	.027**	-.032**	.012	.075**	-.107**
9. Deal volume	-.100**	.121**	-.013	.054**	-.107**	.156**	-.153**	-.011	1	-.350**	.489**	-.002	.602**	.085**	-.264**	-.139**
10. Acquisition period length	.115**	-.110**	.010	-.253**	.088**	-.184**	.187**	-.009	-.350**	1	-.153**	-.031**	-.408**	-.081**	.218**	.062**
11. Era	-.059**	.039*	.001	.080**	-.041**	-.008	-.025**	.040**	.489**	-.153**	1	.033**	.044**	-.002	.062**	-.005
12. Crossborder dummy	-.019*	-.004	-.001	.070**	.002	.005	-.028**	.027**	-.002	-.031**	.033**	1	-.004	-.003	.026**	.030*
13. Private target dummy	-.165**	.128**	.002	.092**	-.096**	.274**	-.259**	-.032**	.602**	-.408**	.044**	-.004	1	.135**	-.504**	-.246**
14. Acquirer CAR	-.079**	.026	.072**	.022	-.026*	.021	-.032**	.012	.085**	-.081**	-.002	-.003	.135**	1	-.108**	-.118**
15. Transaction value	.341**	.048**	-.015	-.037**	.085**	-.237**	.185**	.075**	-.264**	.218**	.062**	.026**	-.504**	-.108**	1	.594**
16. Acquirer market value	.316**	.064*	-.101**	.076**	.022	-.082**	.178**	-.107**	-.139**	.062**	-.005	.030*	-.246**	-.118**	.594**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).